

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

BETTER FRUIT

VOLUME XVI

AUGUST, 1921

NUMBER 2

FEATURES IN THIS ISSUE.

Spraying Methods to Improve Pest Control

BY LEROY CHILDS
Superintendent Hood River Experiment Station

Methods of Prune Drying in Oregon

BY RAY POWERS
*Commercial Dehydration Laboratory, Bureau of Chemistry
U. S. Department of Agriculture*

The Relative Value of Cover Crops

BY H. THORNBUR
Superintendent Horticultural Substation, Victor, Montana

Budding the Peach, Plum and Cherry

BY JOSEPH OSKAMP
Horticulturist, Missouri State Fruit Experiment Station

The Central Cooperative Marketing Plan

BY THE EDITOR



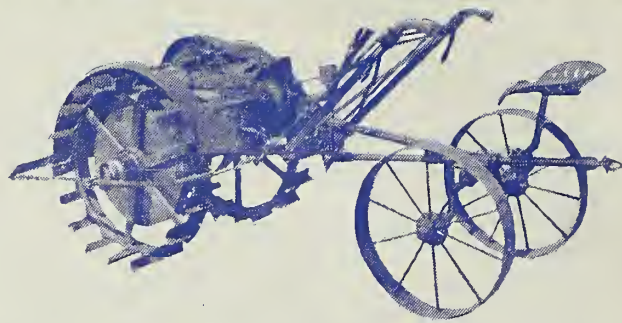
20c
the Single
Copy

Subscription One
Dollar per Year
in the United
States; Canada
and Foreign,
Including Postage,
Two Dollars,
Payable in
American Exchange

BETTER
FRUIT
PUBLISHING
COMPANY
PUBLISHERS
PORTLAND
OREGON

Harrell C R Agric bldg.
Comp

EFFICIENT DURABLE ECONOMICAL



Price \$460.00 f.o.b. Portland—The Oldsmar Tractor

Especially Designed for Use in Orchards, Berry Fields and Orange Groves

Oldsmar Frost Protector

Absolute frost protection at a cost that is saved many times over through the prevention of damage during a single freeze.



Write for literature describing this crop insurance. Don't wait until frost comes, it's too late then.

Fruit growers and truck farmers through the Pacific Northwest as well as California and Florida are using hundreds of these tractors in the hardest kind of work, and they are proving every day that THE OLDSMAR is the "biggest small tractor and the smallest big tractor" on the market. More dependable than any horse or mule—and it eats only when it is working.

The price, \$460 f. o. b. Portland, puts this fine machine within the reach of all.

Being built low, THE OLDSMAR will not break or damage the overhanging branches of your trees or vines. The independent clutch in each wheel makes short, quick turns possible. The comfortable riding sulky makes play out of otherwise hard work.

THE OLDSMAR plows, harrows and prepares the seed bed, plants the seed, applies the fertilizer, cultivates the field, harvests the crop, hauls, loads and does the work of a stationary engine. In fact, it replaces the horse or mule entirely on the small farm. As a special introductory inducement, a \$20 plow will be given FREE with the first machine sold in each community.

Write today for literature and let us tell you how THE OLDSMAR will meet your particular requirements. Dealers, we have an attractive proposition to offer you.

O. V. BADLEY CO., Distributors

425 East Morrison Street, Portland, Oregon

North Pacific Coast Line

Joint Service of

The Royal Mail Steam Packet Company—Holland-America Line

Fast Freight Service Between

VANCOUVER, B. C.—PUGET SOUND—COLUMBIA RIVER—SAN FRANCISCO—and
LOS ANGELES HARBOR

AND

LONDON—LIVERPOOL—HULL—ROTTERDAM—AMSTERDAM—ANTWERP—
HAMBURG and HAVRE

From Pacific Coast Ports

Loading

From Europe

Loading

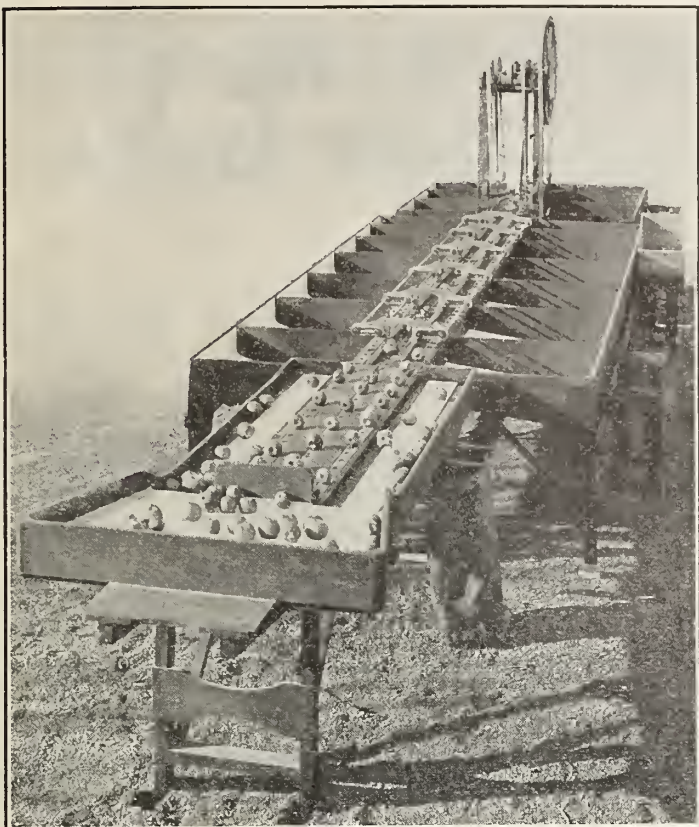
S. S. KINDERDYKEarly August
S. S. MOERDYKLate August
S. S. NOORDERDYKLate September
S. S. EEMDYKEarly October

S. S. NOORDERDYKEarly August
S. S. EEMDYKLate August

**All Steamers Equipped with Large Coolrooms and Refrigerators for the
Transportation of Fish, Fruit, Cheese and Other Perishable Cargo**

For freight rates and space apply:

Oregon-Pacific Co., 203 Wilcox Bldg., Portland, Oregon—Main 4565



Absolutely No Bruising of the Fruit by Using the Ideal Fruit Grader

It is built for two, three and four grades, and room for four, six, and eight sorters to work at one time. The machine can be adjusted while running in about one minute of time.

It is the most simple machine on the market, never gets out of order, as there are no complicated parts to get out of adjustment or break.

We have placed our new sorting table on this year's output which increases the amount of fruit that is packed per day.

It is noiseless in operation. Nothing to break, as the fruit is graded by coming in contact with elastic bands only.

We will be pleased to mail you our folders and prices of our several size machines upon application.

Our literature explains the working parts in detail, also shows several different views of the machine.

Ideal Fruit & Nursery Co.

HOOD RIVER, OREGON

Cables:
POUPART,
LONDON

Codes:
A B C
(5th Edition)
Marconi
International

Bankers:
Merchants Bank of
Canada
Bank of Nova
Scotia, Etc.

T. J. POUPART

(John Poupart, William Ravenhill)

Convent Garden, London, W. C. 2

REGISTERED



TRADE MARK

The Largest Firm of Fruit Salesmen in Great Britain

(ESTABLISHED OVER A QUARTER OF A CENTURY)

SALES BY PRIVATE TREATY ONLY (Gives best results)
COMMISSION THE EXCLUSIVE BASIS (Purchase propositions cannot be considered)

ADVANCES OFFERED TO COVER FREIGHT CHARGES

Special Facilities for Handling Consignments from Co-operative and Other Organizations

We are pleased to announce that we have arranged for Sam Birch to again visit all our shippers. Correspondence can be addressed to him in advance, care of "Better Fruit" office.

Members of

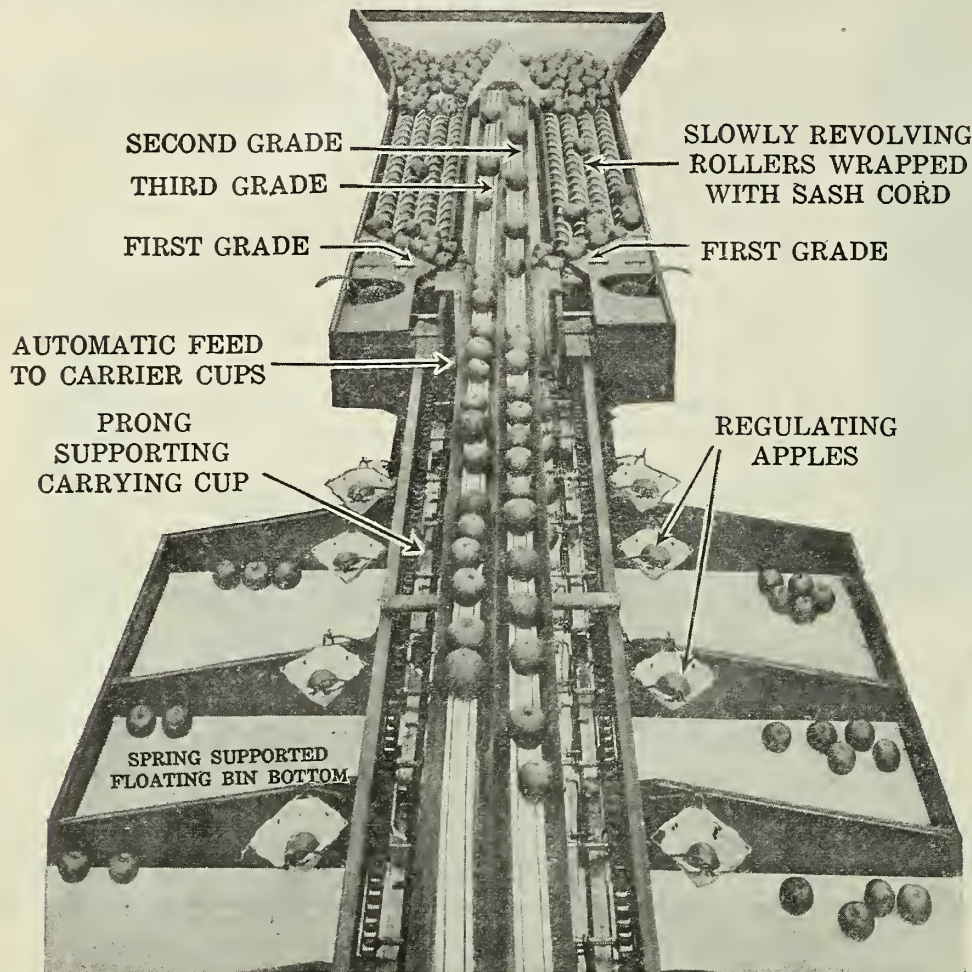


SPECIAL NOTICE

We have now opened a branch at Liverpool which will be conducted on the same lines as London. Growers can communicate direct with the manager,

T. J. POUPART
54 Stanley St.
LIVERPOOL

The Improved CUTLER "Two-Method" Mechanical Sorting Table—1921 Model



Upper view of the 1921 Cutler "Two Method" Mechanical Sorting Table and a portion of the bins and Sizing Mechanism of a FOUR SECTION MODEL or of a BIG FOUR MODEL for Box Packing.

The sorting table is the most important part of any fruit grader. The Cutler "Two Method" Table is designed to handle your fruit efficiently whether the sorting is difficult due to some blemish or whether the fruit runs strong to the first grade.

You can change instantly from one method of sorting to the other or you can use the roller method on one side and the pick up method on the other.

Eventually You Will Buy a Cutler Grader Why Not Now?

Fill out the coupon below and mail to us today. You may regret not doing so.

Orders are coming in rapidly and if you delay placing your order we may not be able to make delivery when you need the equipment.

Cutler Manufacturing Co.

353 East Tenth Street, Portland, Oregon

Please send me descriptive circulars and prices of the equipment as indicated below.

Check the equipment you are interested in.

.....GraderOff grade return belt attachment
.....Box PressCull Separation attachment
.....Grip Trucks	

Crop expected in 1921.....boxes

Name

Address

Box Presses

See the Cutler Press before buying. They will give you entire satisfaction and stand up under hard use. Fill out the coupon today for catalog and prices.

Cutler Manufacturing Company

353 East Tenth Street

Portland, Oregon

BETTER FRUIT

Pioneer Horticultural Journal of the Pacific Northwest

Entered as second-class matter April 22, 1918, at the Postoffice at Portland, Oregon, under act of Congress of March 3, 1879

VOLUME XVI

PORTLAND, OREGON, AUGUST, 1921

NUMBER 2

Spraying Methods to Improve Pest Control

By Leroy Childs, Superintendent Hood River Experiment Station of the Oregon Agricultural College

SPRAY, appliances, methods and equipment have passed through a rather rapid revolutionary process during the past few years. A very few years ago a two or three horse power sprayer was considered a "real outfit"—it was a long step forward when contrasted with the barrel pump outfit, but in reality this machine was a mere plaything when compared to our 10 and 15 horse power machines of today.

The development of the spray gun made necessary the production of much more power in order to produce and maintain sufficient pressure to operate the gun effectively. Just what is the ideal capacity and horsepower needed for the orchardist of moderate holdings has not been thoroughly established yet. It appears to the writer that some of our modern machines are over

supplied with horsepower for the amount of work that they are actually required to do while still others are being made decidedly under the needed capacity. It must be remembered that spraying with guns can not be properly accomplished with entire effectiveness unless applied with adequate power. An over supply of horsepower represents waste, not only in actual operation, but depreciation on horsepower not utilized. It must be remembered that this unused horsepower was paid for at the time of the purchase and wears out along with the power being actually used.

We are inclined to jump from one extreme to another in our enthusiasm; experience, however, brings about a balance which will work out in the case of sprayers of economical and efficient construction. The

requirements of an all around, effective machine for the orchardist of moderate holdings are probably not all understood at the present time, though these requirements are gradually assuming definite shape.

The only spray thrown from a spray gun that will meet all requirements in insect and disease control is one that is finely broken up, is misty, and not of coarse or stream-like consistency. Some insect pests and plant diseases may be controlled by applying a spray in coarse form—many can not be so controlled—all can be handled by a fine mist-like spray provided the outfit handles enough per minute and possesses sufficient power back of it to put this finely broken-up spray in all parts of the tree. Many small sprayers (two or three horsepower capacity) can maintain a pressure of 275-300



Two types of spray thrown from a gun. For close range work the broad fan-shaped spray should be employed. The tops may be covered by using the narrower form. Avoid drenching; this often occurs before the art of spraying is mastered.

pounds with two guns operating, provided the discs are cut down fine enough. However, in cutting down these openings the actual carrying properties of the spray is materially limited and as a result the tops of the trees suffer, especially so in sections inclined to be windy. Guns so equipped with fine discs are usually handling no more than 2½ gallons of spray per minute. This is an uneconomical unit, as the operator can use much more material satisfactorily and a spray of this nature is one with no "kick" behind it. If larger openings are used in the discs the spray from this small outfit becomes coarse and stream-like, due to limited pump capacity, and where employed is usually associated with very poor success with insect and disease control. At no time should more than one gun be used on a sprayer of this type.

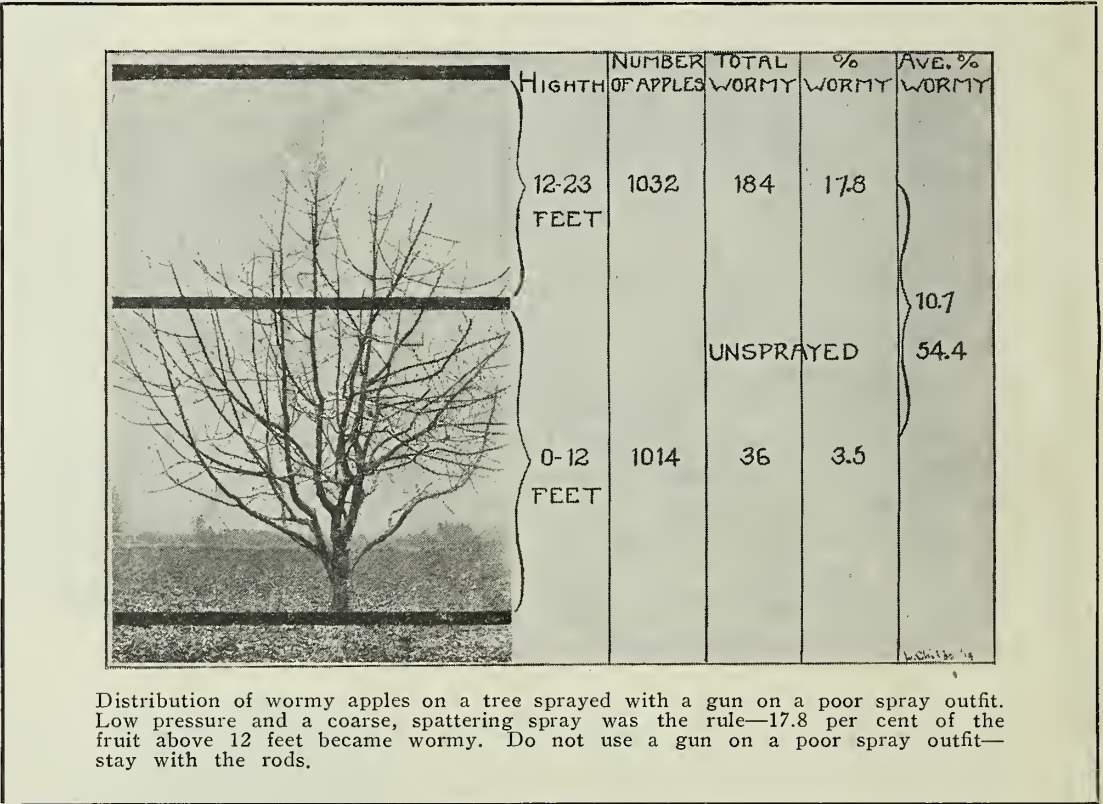
JUST what the economical unit to employ in the case of the output from the spray gun has not yet been definitely established. These requirements would probably vary in trees of different sizes; it being possible to use more spray per minute per gun with economy on very large trees than could be done on small trees. The writer's observations indicate that about 5 gallons per minute per gun at 300 to 325 pounds pressure is a unit that can be used to greatest advantage. Some growers have been noted using more spray than this per minute, but usually their operations are accompanied with considerable waste of material; 5 gallons per minute properly applied keeps a man busy, especially so with trees of moderate size. Nevertheless, much ground is being covered and very good work is being done.

As a general rule two guns to a machine are most often employed and are probably the most economical unit for the average orchardist to employ. In the case of very large trees the time will come in most orchards when some spraying will have to be done from the top of the rig in order that the upper portions of the trees may be thoroughly protected. Considering 5 gallons per minute from each gun as an average amount of material to use it can be seen that for ordinary usage the machine should handle 10 gallons per minute of material actually used. If more guns can be used economically in the orchard a proportionate pump capacity is needed. A sprayer should possess together with the normal peak output from the guns considerable reserve in the form of overflow. Just what added reserve is needed is a debated question at the present time, but from field experiences that have come to the attention of the writer it appears that a machine should pump at least 3 gallons more a minute than is actually required in operating the outfit. This gives a little leeway in the case of the engine or pumps not working properly. There are always times—at sometime during the spraying season—that this added re-

serve may be called upon to keep the spray operations going. In the case of a machine of little or no reserve above the actual requirements there is always a tendency to crowd the engine in order to get the spray needed to do good work. This usually results in a rapid depreciation of the machine and is invariably accompanied with successions of breakdowns. In the writer's opinion then, the machine constructed to pump 15 gallons per minute at a pressure of 300 pounds at least should prove to be an outfit of great effectiveness.

DOUBTLESS we shall see a great improvement in the many makes of sprayers during the next few years and it undoubtedly will be possible to choose a

Low pressure from these small capacity outfits does not produce a spray of the proper consistency to accomplish a satisfactory coating. The liquid leaves the guns in a coarse, spattering stream. There is no fineness of division of the particles and the only way that a tree can possibly be covered is to drench it, thereby wasting much material. Finely divided spray has much the same consistency as dust particles where dusting is employed and controls calyx worms and operates in the same manner as in the case of properly applied liquid solutions. If this spray is not broken up into a light drifting mist the principle of calyx-worm control is destroyed and poor results are bound to follow. There is no possible chance of obtaining much calyx protection



sprayer of more or less simple construction to fit the bill.

We all probably have seen the results obtained in orchards sprayed with guns used on small or inferior outfits. Invariably when so employed the gun has not given a good account of itself. A great many results have been tabulated at the Hood River branch of the Oregon Experiment Station and from these tabulations it is quite easy to show where the seat of the trouble originates. In checking up results in various insect and disease control work the fruits have been segregated at the different heights and their conditions noted. In the case of codling moth control, where spray guns are employed on poor outfits (which developed 175 to 200 pounds pressure) wormy apples developed from a height of 12 feet to the tops of the trees to the extent of 17.8 per cent, while but 3.5 per cent became wormy below 12 feet. There is only one explanation for this condition and that is the fact that the spray was not applied in the right form to the tops of the trees.

in the tops of the trees with a gun throwing coarse, spattering spray. This might possibly be accomplished from a tower. Gravity is the factor which allows the poison to reach the calyx end of the uppermost apples. The spray material must be placed there in the proper condition and in sufficient amounts to effect a coating as it falls. A coarse spray goes up in large droplets and comes down in much the same form and a large portion passes over the tree in the form of an arc. Unless a very excessive amount of spray material is thrown into the tops of the trees only a few of the calyx ends will receive the spray. Good control can be accomplished when the spray is applied in the proper form.

GROWERS who are having difficulty with their scab control are up against the same proposition. We know that the apple scab fungus attacks both the upper and under surfaces of the leaves as well as the fruit. Our experimental work has demonstrated that it is just as important to cover
(Concluded on page 20)

Methods of Prune Drying In Oregon

By Ray Powers, Commercial Dehydration Laboratory, Bureau of Chemistry,
U. S. Department of Agriculture

THE prune crop constitutes nearly sixty per cent of the total fruits grown within the lower Columbia and Willamette Valleys of Oregon. Italian and Petite prunes are grown in these regions, but the former comprise almost the entire acreage. However, Petite prunes are preferred by some evaporators and an attempt is being made to grow them on a large scale. Analyses of the Italian and Petite prunes follow:

*ITALIAN PRUNES				
Moisture	Invert Sugar	Cane Sugar	Acidity as SO ₃	Nitrogen
Pct.	Pct.	Pct.	Pct.	Pct.
25.75	45.31	8.38	1.4	0.47
26.80	46.03	3.80	1.0	0.375
26.80	41.93	2.51	1.4	0.46
24.10	50.00	5.30	1.0	0.419
27.60	34.47	3.20	1.2	0.355
24.95	48.94	2.08	1.1	0.34
24.25	42.30	5.96	1.0	0.355
32.20	40.84	2.51	1.2	0.39
19.65	37.20	8.29	1.4	0.42
21.50	37.20	4.60	1.4	0.37
Av. 25.36	42.42	4.66	1.21	0.393
*PETITE PRUNES				
24.20	52.95	4.59	0.80	0.24
19.55	52.22	4.94	0.80	0.30
19.95	58.78	3.00	0.80	0.244
24.55	53.78	5.28	1.20	0.316
Av. 22.06	54.42	4.45	0.90	0.275

*Analyses by The Oregon Agricultural College.

Most of the prunes from these districts are dried, but a small percentage reach the market in a fresh or green state. There would be a decided advantage in stabilizing the prune industry of Oregon if a larger portion could be marketed in the fresh condition. This problem, however, is rendered difficult because of the frequent rains and humid weather during the harvesting season. Prunes frequently split or crack during the rainy weather, and in this condition they are exceptionally susceptible to attacks by a fungus disease known as brown rot (*Sclerotinia fructigena*).

Both "splits" and brown rot which frequently occur together, were found in the 1920 season. The loss from these causes is estimated as 25 to 35 per cent of the crop, while a loss of 50 per cent is estimated as the total loss from all causes, if those prunes not harvested be included.

The season of 1920 differed from ordinary seasons in the fact that it was very humid and rainy, with the result that splitting of the fruit occurred frequently, followed by brown rot. Under these conditions drying was rendered difficult and costly, and the quality of the finished product averaged below the normal. To minimize these difficulties the prunes were usually graded during the harvesting and on arrival at the evaporator. They were then given the preparatory treatment and placed in the evaporator as rapidly as possible.

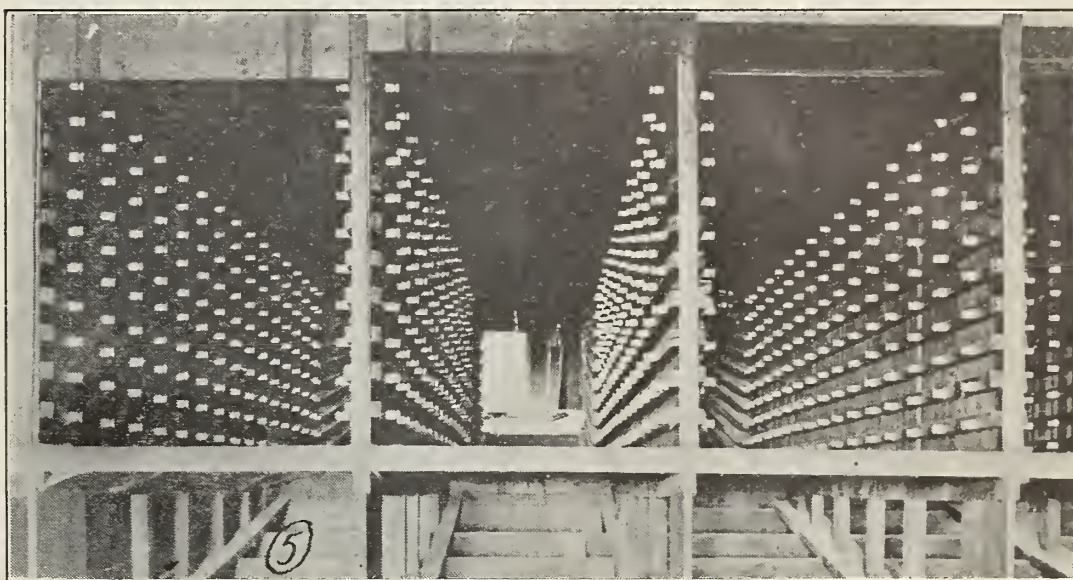
Prunes not only comprise the largest acreage within the lower Columbia and Willamette Valleys, but the season for harvesting, drying and marketing of the crop is exceedingly short, usually from 18 to 25 days. These conditions require and demand a drier of large capacity in order to

take care of the prune crop. An evaporator, after giving its season's use on prunes, frequently remains idle until the following season. It is natural under these conditions that the attention of prune growers should be turned toward the construction of an evaporator combining large capacity and output with inexpensiveness of construction.

The common style of natural draft drier is the revised Allen type now commonly known as the Oregon Tunnel Evaporator. This evaporator can be built with large capacity for a very reasonable cost and is, accordingly, in most popular demand among prune growers. The cost of a three tunnel

an opening within the floor of the drier at the end opposite the stack, and at the lowest point of the tunnel. The heated air passing through this opening is deflected over the fruit by staggering the trays containing the prunes in such a way that the top trays extend farthest out over the incoming air. The heated air after passing over and between the trays escapes through an opening at the top of the drier where it passes up the ventilator.

The rate of air circulation through the Oregon tunnel type driers was tested and found to range from 50 to 700 linear feet per minute at the point of intake within



LOOKING THROUGH THE TUNNELS OF AN EVAPORATOR

evaporator of the Oregon type, with a capacity of 3.5 tons of fresh prunes, is about \$3,000 to \$4,000 including furnace and trays.

THE Oregon drier may be briefly described as consisting of three or more tunnels usually 20 to 22 feet long, each tunnel being 30 to 36 inches wide (interior dimensions), inclined at a pitch varying from one to two inches to the foot in such a way that the highest part of the drier is at the exhaust or loading end. The tunnels are located over a cement or brick heating chamber within which a stove, usually of the hop type, is placed.

The products of combustion from the stove pass through a series of pipes, arranged back and forth across the heating chamber for radiating heat to the surrounding air before passing out at the stack. On each of the four sides of the heating chamber and near the bottom, holes are provided in the cement or brick walls to allow the entrance of air for heating and circulation. The sizes of the openings vary with the capacity of the drying chamber, but average 8 by 11 inches for the three tunnel type of drier.

The heated air from the furnace chamber is admitted to the drier above, through

the drier. The rate of air movement depends upon the outside conditions of temperature, humidity and air movement, the temperature to which the air is raised within the furnace chamber, the size and dimensions of the heating chamber and stove, and the openings for the admission of cold air into the heating chamber.

From observations on natural draft driers, during the season of 1920, there was found a common practice of partially closing the intake around the furnace chamber and also the ventilator, in order, it was stated, to "hold the heat." These methods are obviously faulty when it is recalled that heat without air circulation is practically useless in drying.

In all driers visited and where no objections were made to the contrary, the ventilators and openings around the furnace chambers were opened. The immediate results were to increase air movement and to require a slightly larger fire to heat the greater volume of air. The ultimate result was in most cases that of decreasing the drying time several hours. In one evaporator the air circulation was increased from 50 to 350 linear feet per minute by this method. Another drier reported a decrease in the drying time from 30-40 hours to 27-34 hours. The latter drying time could

doubtless be reduced still further by enlarging the ventilators and thus allowing a larger portion of the air capable of being taken into the drier to pass out. In a comparison of this type drier it has been observed that the height of the heating chambers varies from 7 to 16 feet, and that the higher chambers are usually accompanied by shorter drying periods.

The tunnels of one drier of the Oregon type were found to be inclined at a pitch of 3.5 inches to the foot, this being the greatest pitch of any drier visited. The air movement was tested by an anemometer and found to be 700 linear feet per minute at the point of intake. The drying time was stated as 20 to 24 hours.

Another drier depending upon natural draft is the stack type. This drier is used to some extent in this vicinity, but has been largely replaced by the tunnel drier. The drying chamber of the stack drier is usually divided into cabinets with cleats nailed to the sides which permits the use of trays for holding the fruit during drying. The heated air passes through the slatted floor, through the trays within the cabinets, and out through the ventilator at the top.

A FEW mechanical draft driers of the tunnel type are in use for the exclusive drying of prunes, but the forced draft driers are not generally considered economical of construction in this vicinity unless there are a variety of crops in the locality which lends themselves to drying. The reason for this is that a prune drier is used for only a very short period (18 to 25 days) in each year and the interest on the investment is too large for economic results.

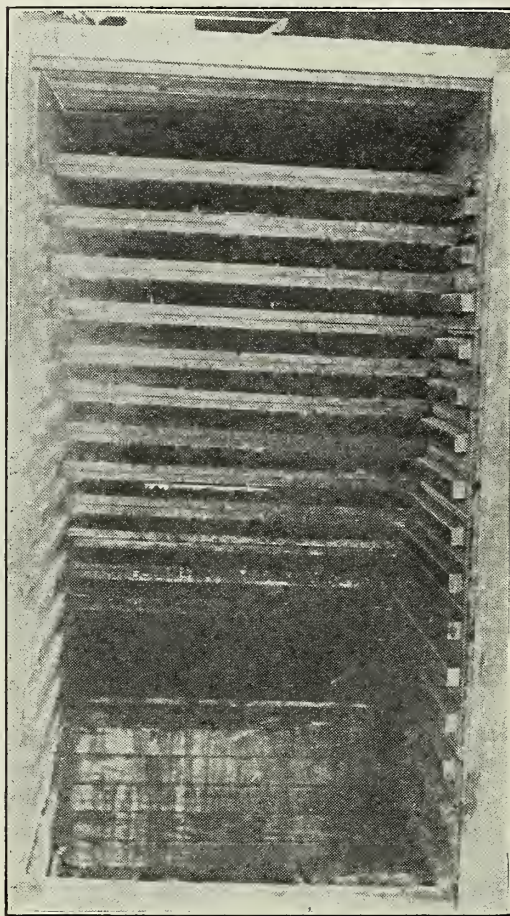
A mechanical draft drier located in the southern part of Oregon, and reported to give excellent results, is a modified Oregon tunnel. Vento heaters are placed on the lower floor through which the air is circulated by a 40-inch Sirocco fan. The heated air passes through the openings in the floor into the tunnels, being distributed by dampers placed even with the floor, which permit regulation. The used air passes out at the top through a ventilator as in the standard Oregon type drier except that arrangements are made for recirculating any portion of the air desired. Usually about 60 per cent of the air is recirculated.

Great differences of opinion are expressed among the growers concerning the question of dipping previous to drying. Some of the prunes are dipped in hot lye solution, some in boiling water, others in cold water, and some are dried without previous treatment of any kind. All of these prunes, however, are marketed at standard prices. The percentage of lye where used varies between 0.5 per cent and 1.5 per cent. The dipping is done in vats by hand methods in the smaller driers and by machines in plants handling considerable tonnage. The method of spraying the boiling lye solution onto the prunes is used to some extent with favorable results. In all cases where lye dipping is practiced,

this is followed by washing; in the smaller plants by means of wire baskets, and by means of chain conveyors passing through a tank of water, or by spraying in the larger plants.

The spraying of the lye solution followed by a spray washing seems to give more uniform results because all the prunes are subjected to equal treatment. Undoubtedly, if the prunes were graded before the treatment with lye, the value of the spray methods for lye treatment and washing would prove far superior to other practices in use at the present.

In some instances the prunes are run through a tank containing boiling water which is claimed by the operators of this methods to give results equal to lye dip-



METHOD OF STAGGERING TRAYS OVER AIR INLET OR DRIER

ping, without the disadvantages. In some cases the prunes are merely run through cold water on a chain conveyor, or dipped into cold water by wire baskets, the operators of this system claiming that no advantage is to be gained by the use of lye or boiling water. In a few instances the prunes are not dipped into any solution previous to drying, but it can be said that these instances are few.

The cost per pound to dry prunes in the Oregon type drier varies considerably as the figures are presented by different plants. The range of costs as given lies between one-half and two and one-half cents per pound. A great deal of variation may be accounted for in the factory methods of handling, the kind of fuel used, and the construction of drier and heating chamber. The average figure taken from actual observations, where satisfactory factory methods are employed, is $1\frac{1}{4}$ to $1\frac{3}{4}$

cents per dry pound exclusive of investment and depreciation.

The fuel used in this vicinity is almost entirely wood since this may be obtained nearby in sufficient quantities and at a price which makes its use less expensive than coal. The price per cord varies with the kind of wood, ranging between 5 and 8 dollars per cord for the year 1920. It is estimated that between one and two cords of wood are required to dry one dry ton of prunes, with the drying time averaging from 20 to 25 hours.

The degree of heat employed to dry prunes is another factor of wide variation. Temperature from 150 degrees Fahrenheit to 195 degrees have been observed. Those using the lower temperature claim the prunes will scorch above 155 degrees, while those using the higher temperature claim no scorching at the higher temperatures. Probably not over 170 degrees as the highest limit should be used for prune drying, and 160 degrees of heat would be a safer margin in order to prevent scorching or caramelization of the sugars.

Observations of humidities proved that in all driers of the Oregon type that were tested, the relative humidity was always below 10 per cent at the intake, and from 11 to 27 per cent at the ventilator. In the Oregon type drier installed at the Oregon Agricultural College, an attempt was made to increase the initial humidity of the incoming air by cementing off about one-fourth of the floor of the heating chamber by a wall six inches high, and filling this space with water. Although the water evaporated rapidly, the relative humidity was not raised above 10 per cent.

From these observations it would appear desirable:

(1) To change the design of the driers in order to give more rapid circulation of air by enlarging the size of the ventilators and increasing the pitch of the tunnel from 2-3 inches to the foot.

(2) To secure greater circulation and greater heat transmission by (a) increasing the height of the furnace chamber and (b) increasing the radiating surfaces within the furnace chamber. The latter may be done by supplying more lengths of flue pipe within the chamber in order to remove a greater amount of the heat from the flue gases before passing out at the stack.

(3) To aid circulation by increasing the number of holes around the furnace chamber. This will necessitate increasing the fire correspondingly in order to heat the greater volume of admitted air to the desired temperature.

(4) To admit air on all four sides of the furnace chamber in order to obtain equal distribution of air within the tunnels. This practice is followed in single unit driers and may be followed in multiple unit driers by constructing the heating chambers with a space between them of about one foot, in order to provide for the necessary

(Concluded on page 21)

The Relative Values of Cover Crops

By H. Thornber, Superintendent Horticultural Substation, Victor, Montana

THE problem of maintaining the fertility of the soil has always been of great importance. It is the history of every farming district, that sooner or later, something has to be done to replace what was removed from the soil by the crops, or the yields would decrease until farming became unprofitable if not impossible. The Bitter Root Valley is no exception in this respect. The Montana Experiment Station, realizing that the soils of the valley would need something to maintain their fertility, planned an orchard cultural test in 1908, when the Sub-station was started. This test was first planned to determine the relative value of clover and peas as cover crops as compared with clean cultivation and inter-cropping with a cultivated crop of potatoes. After eight years it was very evident that continuous clean cultivation and continuous inter-cropping with potatoes were not the proper methods of orchard cultivation, and in order to save the trees from premature death the methods employed on these two plots were changed as mentioned in a recent bulletin and also in my paper read at the last annual meeting of the state horticultural society and published in *Better Fruit*, of which this paper is a continuation.

In the beginning a five-acre area was divided into five one-acre plots. Cross-ways of these plots were four rows of each of the following varieties: McIntosh Red, Rome Beauty, Alexander and Wealthy. By this arrangement a certain number of trees of each variety were planted in each plot. Unfortunately fire blight destroyed all the Alexander and most of the Wealthy early in the experiment, leaving only the McIntosh and Rome Beauty.

At the end of eight years when continuous clean cultivation and inter-cropping with a cultivated inter-crop were found to be injurious to the trees these two plots were changed to peas with manure, and clover with one cutting removed for feed the second year. As the experiment now stands, and has been running for five years, we have as follows:

Plot 1. Clover two years, one crop removed for hay; second crop plowed under.

Plot 2. Clover two years, no growth removed, and plowed in fall.

Plot 3. Clover two years, all growth removed, then plowed in fall.

Plot 4. Peas two years with all growth plowed under.

Plot 5. Peas two years plus manure and all plowed under.

The year following the two years of cover crops all the plots are clean cultivated to get rid of the weeds, then the same rotation is started again. As will be noticed this gives one plot with no clover growth removed, one with one cutting removed and one with all growth removed.

The two plots in peas are treated the same with the exception that one plot receives eight loads of manure per acre to each crop of peas plowed under.

The chemical analysis of the soil from the different plots show that the most nitrogen has been added where no clover growth was removed, the next greatest amount where only one crop of clover was removed, and the least where all growth was removed. With the peas the addition of nitrogen was also greater on the plot which received the manure. While the chemical analyses are of value, the growth of the trees and the yield of fruit are perhaps of greater interest from a practical standpoint.

The following table shows the average heights and diameters of the trees in the different plots, and the average annual yield per tree for the last four years.

Plot	Variety	Average Height feet	Average Diam. inches	Average yield per tree for 4 yrs. pounds
1	McIntosh Red	12.7	6.00	121
	Rome Beauty	12.0	5.99	55
2	McIntosh Red	13.6	6.61	102
	Rome Beauty	12.1	5.98	50
3	McIntosh Red	12.2	5.69	64
	Rome Beauty	11.4	5.33	50
4	McIntosh Red	10.6	5.25	48
	Rome Beauty	11.5	5.53	33
5	McIntosh Red	11.3	5.59	40
	Rome Beauty	11.1	5.45	8

WHILE the above table does not show a great difference in the average height and diameter of the trees on the various plots, one must actually see the trees to appreciate the difference. For example, an average tree on plot four, which may be only eighteen inches shorter and have a diameter of only one inch less than an average one on plot two, may have a spread of branches of only eleven feet, while the other has a spread of nineteen feet. Pruning undoubtedly has done much to equalize the height and a stunted tree often has a trunk out of proportion to its size.

The growth of the McIntosh Red trees, as shown by the above table, is in the order of plots 2, 1, 3, 5 and 4. The diameter of the Rome Beauty trees is in the order of plots 1, 2, 4, 5 and 3, and the height in the order of plots 2, 1, 4, 3 and 5. Generally speaking, the trees on all the plots except plot four, have made a satisfactory growth under the present methods of culture. Those on plot four have made the least growth and have produced more small apples than the other four plots combined.

The yields of the different plots during the past four years indicate the value of the various methods of culture. While one might conclude that the average yield per tree is low in all cases, the station records show that severe frosts during the two years

1918 and 1919 cut down the yield of the McIntosh Red slightly over 68 per cent as compared with the 1917 and 1920 yields. The Rome Beauty trees, although twelve years old, have just commenced to bear, after having lost practically all their fruit spurs up to 1918 by fire blight in the blossoms. Plot five, which shows the least yield per tree, cannot be considered a test, because it was clean cultivated for eight years, and, as Bulletin 114 shows, the trees were nearly ruined by "rosette," which is generally conceded to be the result of malnutrition, and was caused by continuous clean cultivation. The trees are recovering very rapidly and satisfactory yields are expected in the next few years.

FROM observations made on the soil during the past three years, that of plots one and two is in the best physical condition. The soil on plot five has improved rapidly during the three years of plowing under peas and manure while the soil on plots three and four is inclined to bake when wet and shows distinctly it could be improved by the addition of more vegetable matter. Evidently plowing under peas alone does not add as much vegetable matter as does the clover, although the bulk appears to be considerable. The plot in clover where all the growth is removed demonstrates that the orchard is not the place to grow hay. Hay and apples are not good companion crops, and sooner or later the apples will fail.

The common and almost universal reason for not growing a cover-crop in the orchard is because of the expense. However, it is pointed out in Bulletin 114 that clean cultivation is actually more expensive than where a cover crop is used. While clover is usually considered more expensive than peas, probably on account of the cost of the seed, it is the cheaper crop to use. Our records show that while the clover seed costs \$8.40, or 70 cents per pound, which is an unusual price, the pea seed costs \$5.00, or 5 cents per pound, and must be sown each year, while the clover is good for two years. This means plowing twice, preparing the seed bed twice, seeding twice, and marking for irrigation twice, etc., for the peas, but only once for the clover. Besides where one crop of clover was removed the hay, about one ton, was worth (1919 prices considered) the total of all the costs of the clover. However, we do not feel that over one cutting should be removed—better not any until the soil is well supplied with nitrogen and humus. The actual difference between the costs of the clover and peas as cover crops was for the two years, \$11.00 per acre in favor of the clover. The peas cost \$33.20 and the clover \$22.20 per acre.

Budding the Peach, Plum and Cherry

By Joseph Oskamp, Horticulturist Missouri State Fruit Experiment Station

BUDDING is commonly resorted to in the propagation of peaches, plums and cherries, although apples may be budded with good success. The work is done during July, August or September when the bark will peel or readily separate from the wood. Where the growing season is early it is possible to bud earlier in the summer. Buds inserted in the late summer unite with the stock, but no growth takes place until the following spring, when the stock is cut off just above the bud and all the growth forced into the desired bud.

A very much larger percentage of buds can be expected to grow if they are inserted in wood that grew the same season that the budding is done, although buds will grow in older wood. If trees are grown from the seed, apple trees may sometimes be too small for budding the first season, in which case they can be cut back to the ground and the new sprouts budded the following summer.

In the case of the stone fruits the budding is done as near the ground as it is convenient to work, usually two or three inches from the surface of the soil. Apples are budded at about the height that it is wished to start the head, or the buds are even set in the lateral branches when it is the desire to use a hardy stock which is not susceptible to disease or winter injury.

The buds are procured from the twigs of the current season's growth of the variety to be propagated and these twigs are known as "budding sticks." The buds are less well developed on the ends of these sticks and therefore the three or four inches of terminal growth is cut off.

The first step in budding is to make a longitudinal slit in the bark of the stock or seedling tree at the desired point and at the upper end of this slit a cut crosswise is made thus forming a letter "T" in the bark at the point where the two cuts meet. The bark at the intersection is gently raised with the point of a knife and the two ends are rolled back so that the bud can be inserted. The bud is cut from the "budding stick" by slipping the knife blade through the bark from beneath the bud upward to a point about a sixteenth of an inch above the bud. The knife is withdrawn and a crosswise cut severs the bud from the stick. For convenience in inserting, it is well to leave a portion of the leaf stem on each bud when cutting off the leaves from the budding stick. The flaps are opened as suggested and holding the bud by the short leaf stem, it is forced from above downward until the square end of the patch of bark bearing the bud comes down to a point where it fits the crosswise cut made in the seedling tree. The bud is now ready for tying. Nurserymen frequently use carpet

string for this purpose. Starting to wind the string at the bottom of the bud, bring the end up in such a manner that it will catch beneath the wound string, so that no knot is necessary and proceeding until the string covers practically the entire cut area, except only a small portion of the bud and adhering stem. The top end is secured in a loop so as to hold the twine in place. It will be necessary to examine the buds within ten days from the time of wrapping because the young trees are growing at this time and the string soon begins to bind and choke. The string is cut by running the blade of a sharp knife through it lengthwise of the seedling on the opposite side from which the bud is inserted.

Peach, plum or cherry seedlings can be purchased from nurserymen or the seeds from the family orchard may be planted and the seedlings grown in which to set the buds. Peach seeds should be allowed to freeze during the winter by placing in sand or dirt out of doors where they may become well soaked by rain and snow. The pits are planted out in the spring. Plum seeds are treated in the same manner. Cherry seeds should not be allowed to dry out, as they will then sprout with great difficulty. Seed from the common varieties of plums and cherries may be used for growing seedlings, but the more desirable stocks used by nurserymen for this purpose are the Myrobolan and Marianna plums and Mahaleb and Mazzard cherries.

The Value of Topping Strawberry Plants

By Gordon G. Brown, Horticulturist Hood River Experiment Station

NOW that the strawberry harvest is over it is well that the grower lay plans for the most important factors connected with the care of such plants for the remainder of the season.

Topping of plants and fertilizing now command attention because upon the manner in which this is done depends results for next year. It is well to keep in mind that sturdy, thrifty plants only will pay and that stunted plants as a rule are a liability rather than an asset.

The writer has been conducting a number of experiments during the past two years with reference to the best time to top plants. The customary practice is to allow from two to four weeks to elapse after harvesting before doing this work. A common conception is that the plants require a "rest" and that they will do better when so handled. During the two or four weeks mentioned the plant remains somewhat inactive until topping is done. Then new leaves are thrown out rapidly. Experiment station records favor topping both in point of yields, size of fruit, vigor of plants and practical economy in cultivation. When the tops are not removed it is quite difficult to hoe around the plants thoroughly and economically.

The main consideration is the question of the best time to top. Shall we wait two weeks or a month before doing this? Apparently there is little to support the delay. The old leaves have practically ceased to function. Obviously, more plant food cannot be stored up until new leaves are present to manufacture this; neither will a new vigorous root system be developed. In two tests bearing upon this problem the results for 1920 and 1921 support this view. The fruit from plants thus handled was

larger both in size and yield. Five year old plants that were not topped were less vigorous than the plants which were topped. The crowns, as a rule, were smaller and supported leaves of smaller size than topped plants. The tests, as suggested have been running only two years, but preliminary results favor early topping.

Dynamite Improvement

THE announcement is made that the DuPont Powder Company has perfected a formula for the manufacture of straight dynamite which results in that explosive being proof against freezing even in zero temperatures. As a consequence of this development, the company has determined to discontinue the manufacture of its former straight dynamite and hereafter all this kind of explosive will be made by the new low freezing method. Straight dynamite has for years been the standard of the world in nearly every kind of open work, but a disadvantage has been its liability to freeze at temperatures below fifty degrees Fahrenheit.

As any dynamite loses some part, if not all, of its efficiency when chilled or frozen, many attempts have been made to make it low-freezing. The perfection of the new "powder" by the Du Pont company makes it possible to use straight dynamite the year round in industrial operations. Thawing, with its loss of time and attendant dangers, has practically been eliminated. The new explosive has been fully tested and proved and the formula for making it has been made standard in all the plants of the company producing dynamite.

Packing Fancy Northwest Peaches

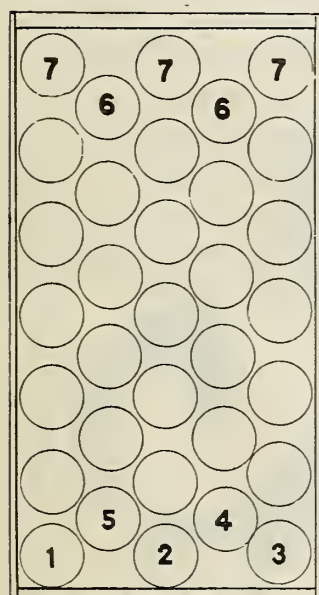
THE various varieties of peaches should be picked at different stages of ripeness, as weather conditions will modify the time to some extent of picking even one variety. Peaches should not be picked when they are green, as the green peach is neither a good shipper or a good keeper. To ship and keep best the peach should be "just ripe."

In picking, pick with the hands and not with the fingers. That is, the peach should be grasped gently but firmly in the hand and removed in a method that will not bruise it. Not a mark should be left on even the ripest peach and they should not be poured from basket to box, but should be handled like eggs.

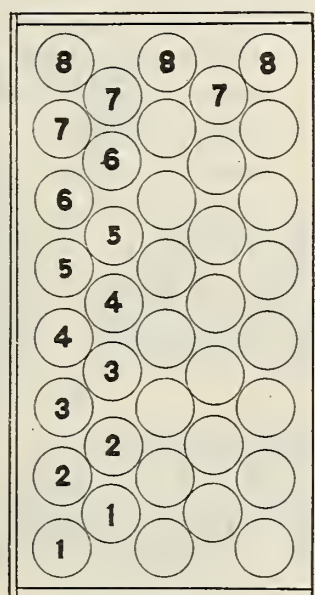
A well lighted and well ventilated part of the packing room should be selected for packing peaches, so that the packer may easily see and lay aside any damaged fruit that passes the sorters. It is well for each

packer to have room for two boxes so that two grades can be run at the same time. The end of the boxes farthest away from the packer should be raised about six inches. Benches placed behind the packers to set the packed boxes on until they are nailed and placed in piles should be provided. Peaches should never be packed when they are warm and the greatest care should be used in handling and hauling them for shipment. The pack should be uniform and the fruit absolutely free from blemishes and fungus, and properly matured. The pack, to secure the best results in shipping, must be tight and up to, but not above the end of the box. The sizes of the boxes most largely used for peach packing in the Northwest are 18 inches long, 11½ inches wide and 4 inches deep, and 18 inches long, 11½ inches wide and 4½ inches deep.

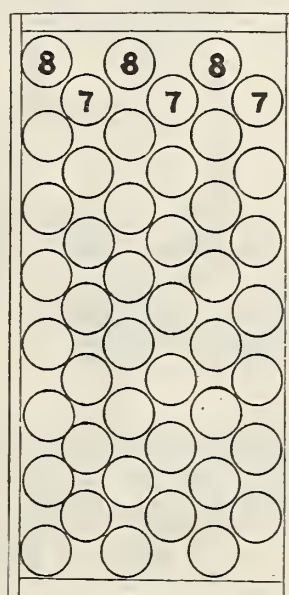
Below will be found diagrams showing methods for putting up fancy peach packs:



65—EXTRA FANCY
3-2 (7-6) PACK



75—FANCY
3-2 (8-7) PACK



90—CHOICE
3-3 (8-7) PACK

Interesting and Valuable Topics Discussed

THE summer meeting of the Washington State Horticultural Association which was held at Yakima, July 21 and 22 brought out an unusually large attendance and the discussion of a number of interesting and valuable topics to the fruitgrower.

One of these topics was in regard to the value of oil paper as a fruit wrap, a subject that was handled by D. F. Fisher, plant pathologist with the United States Department of Agriculture, whose experiments led to the discovery of the great advantages of this new wrapping material. Apples wrapped with the oil paper were exhibited by Mr. Fisher that had been left in a room with ordinary ventilation and temperature, that appeared almost as fresh as when packed. While apples wrapped in the ordinary wrapping paper and held in storage

for the same length of time which were exhibited, were badly decayed.

Next to the importance of the oil wraps being a great fruit saver was the statement of Mr. Fisher that it costs only 3 cents a box more to use the oil paper.

In discussing the subject of cover crops Roy Larsen, soil specialist of the Wenatchee Experiment Station, strongly advocated leaving orchards covered with vegetation and even condemned the cutting of alfalfa planted in orchards as inimical to the best soil conditions for fruit trees. In supporting his views he referred to the Wenatchee district where growers he said had virtually abandoned clean cultivation and yet were producing larger yields of apples than formerly.

R. J. Newcomer, of Yakima talked on the value of the calyx spray while Dr. A. L. Melander of Washington State College, spoke interestingly on the methods of combatting the leav roller. P. S. Darlington, horticultural inspector, discussed collar or crown rot and C. DeVere talked on the

development of water transportation.

As an outcome of the prevalence of collar rot in the Yakima valley the association made a unanimous request to the United States Agricultural Department to send an expert to Yakima to study this disease. Owing to the keen interest in the meeting this year, M. L. Dean secretary of the association announced that next year Wenatchee and Yakima would each have a two day session of the association.

Procedure to Protect Oregon Apples

A PROCEDURE to protect the reputation of Oregon apples for excellence that will interest the fruit growers and shippers of the Northwest has just been instituted by the Federal Trade Commission. Upon an application for the issuance of a complaint the Federal Trade Commission, as required by law, has cited the Caravel Company, Inc., an exporting company in New York City, to appear before it on a charge of unfair competition in foreign commerce.

The complaint recites that in the State of Oregon certain apples are grown which have become well known as "Oregon Newtown Pippins" and which have acquired a reputation of superiority for shipping and keeping qualities for export purposes.

The complaint further recites that in response to an order from Aktiegolaget Halfdan Buhrman, an apple dealer in Stockholm, Sweden, for "Oregon Newtown Pippin" apples, the Caravel Company shipped to this firm 2,000 boxes of other apples with the knowledge that these apples were not the Oregon apples ordered, invoiced the apples as "Oregon Newtown Pippins," and received for the shipment the higher price commanded by Oregon apples. When the shipment arrived, the apples were spoiled.

The commission avers that this conduct has the capacity and tendency and does injure the business of other apple growers exporting apples from the several states who maintain selling grades, and discredits in foreign markets the good name and business reputation of competing American exporters and of American products.

Complaint is filed by the commission after preliminary informal inquiry made upon the suggestion of the Department of Commerce. The filing of the complaint and the citing of the Caravel Company to appear and make answer initiates a proceeding to try out in a formal way the questions raised by the complaint, this including the examination of witnesses under oath and introduction of testimony on both sides. The hearings will commence on August 31, or a date to be later announced.

Now is a good time to make a survey of your apple and pear harvesting equipment. Don't wait until it is time to pick the fruit.

The Central Cooperative Marketing Plan

By The Editor

FROM present indications the long sought for and desired central co-operative organization to assist in the marketing of box apples grown in the Pacific Northwest states may be realized. Although no definite information has been given out as to when the organization will materialize members of the committee who were appointed at the marketing conference attended by representatives of the six Pacific Northwest states and held in Portland, July 11, 12 and 13, say that the outlook for such an organization is very favorable. With this in view it is expected that the organization will be formed some time during the early part of the new year.

However, whether the proposed central marketing organization materializes or not there is no mistaking the fact that the representatives of the various co-operative box apple handling associations in the Northwest are thoroughly in earnest in securing at the least a close working agreement that should greatly benefit the industry as a whole. While the concrete results accomplished at the big meeting held in Portland do not loom very large on paper the interests and influences brought together put this important element of the fruit business in much closer touch than it ever has been and seemingly clinched the long entertained idea that it is only by amalgamating their interests that the apple and other deciduous fruitgrowers of the Northwest can attain the greatest degree of success.

Held under the auspices of the Farm Bureaus of the Northwest the meeting was made notable by an absence of conflict which so frequently characterizes such gatherings, with the result that such action as was taken was constructive and progressive. The need for an organization to han-

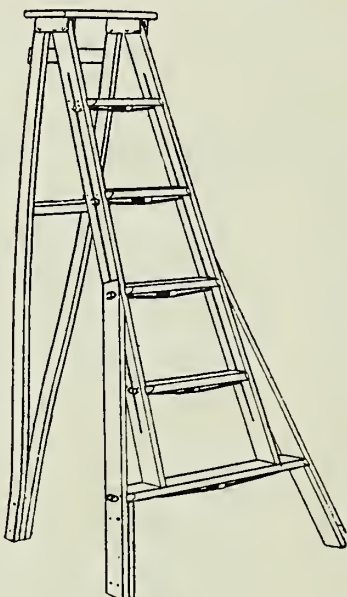
dle the combined box apple output of the Northwest was recognized and approved; a committee was appointed to devise a nationwide advertising campaign and a resolution adopted opposing haphazard methods of legislation in connection with the fruit in-

dustry. The direct aim of the resolution is to have all contemplated legislation approved by all of the various organizations which will compose the central body before it is submitted for action.

The committee appointed to perfect an advertising plan is a representative one, being composed of J. A. Warman, manager of the Skookum Packers' Association of Yakima; Dwight L. Woodruff, manager of the

A Dependable Ladder

Made of clear well seasoned spruce, it is light and strong.



THE HARDIE

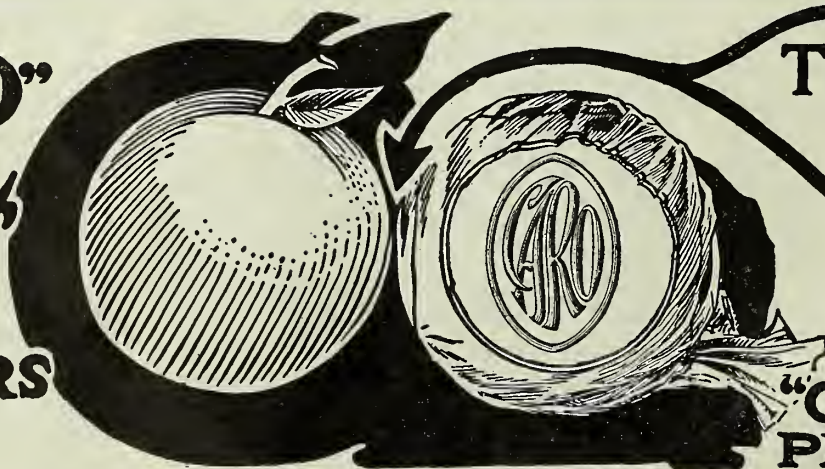
Designed especially for orchard work with wide spreading side legs and a rod reinforcement under each step. This strong, rigid construction gives your picker confidence and a wider range of picking. Its use soon saves its cost. Hardie ladders and other orchard devices are fully described in our free catalog, which is mailed on request.

The Hardie Manufacturing Co.

55 N. Front Street

Portland, Oregon

"CARO"
fruit
WRAPPERS



This
is the
POINT

"CARO"
PROTECTS

"Caro" Protects—"Caro" Prolongs the Life of Fruit—Why?

CHEMICALLY TREATED, "Caro" from DessiCARE (to dry up)

FRUIT MATURITY is retarded by cold or refrigeration and hastened by heat or atmospheric exposure.

The soft fibrous silk-like texture of "Caro" provides just sufficient ventilation to retard the ripening process.

FRUIT DECOMPOSITION starts from a bruise which opens tiny holes and permits juice to escape and BACTERIA to enter. "Caro" clings closely and dries up the escaping juice. "Caro" ingredients harden the spot, kill the BACTERIA, arrest the decomposition.

United States Distributors, AMERICAN SALES AGENCIES CO., 112 Market Street, San Francisco, California

Wenatchee District Co-operative Association; C. I. Lewis, assistant manager of the Oregon Growers' Co-operative Association; C. H. Swigert, manager of the Yakima Fruitgrowers' Association, and A. W. Stone, general manager of the Hood River Apple Growers' Association.

Incidentally an important development in connection with the meeting was the promise of the Portland Dock Commission to the representatives of the Northwest co-operative associations that it would establish a municipal cold storage plant on the city terminal docks to care for shipments of fruit and other perishables by water. With a municipal cold storage plant on the docks in Seattle and one established in Portland the fruit growers of the Northwest will be well provided with land terminals for using water transportation.

The general outlook for the organization of the proposed central co-operative marketing body in the near future seems bright and another year should see it in successful operation.

Liming the Orchard

LIME is a healthful adjunct in the orchard for either the cover crop or grass mulch system of management. In either case, a good growth of crop is desired to supply adequate amounts of organic matter and nitrogen to the soil and better to protect the soil against injury from erosion.

For a cover crop, legumes are generally employed, and, being sensitive to lime-deficiency, they respond to liming on acid soils. When plowed down or disked into the ground, their decay is promoted and regulated by lime. The better decomposition thus fostered provides assimilable nitrate for the fruit tree.



Northwest Orchard Ladders

"The Quality Line"

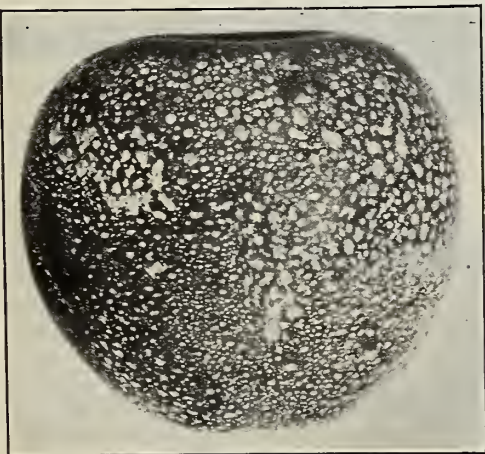
For Sale by
Leading Dealers Everywhere

Northwest Fence and
Wire Works
PORTLAND, OREGON

Spreado

THE PERFECT SPREADER

Ready for use. Simply stir into the spray solution



Arsenate of Lead
No Spreader.

"SPREADO" produces a uniform coating, completely protecting the fruit.

"SPREADO" increases the adhesiveness of the spray, especially desirable in rainy sections.

"SPREADO" increases the wetting and covering power of the spray, more than paying for itself in the saving of spray material.

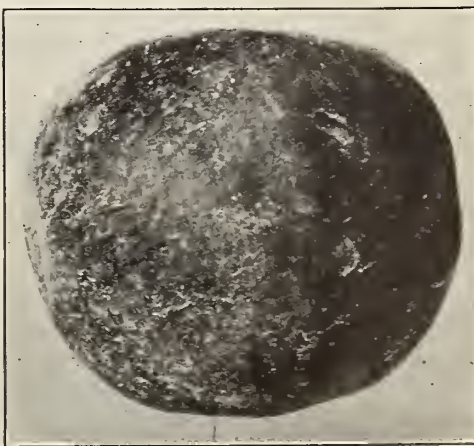
"SPREADO" does not in any way injure the foliage or the fruit.

"SPREADO" is highly recommended as a spreader by the Oregon Agricultural Experiment Station.

DIRECTIONS

When filling the tank start agitator, sift in gradually the required amount of "SPREADO" keeping the agitator in motion until the tank is filled and spraying is begun.

"SPREADO" is especially recommended for use with arsenate of lead for the cover sprays in the proportion of 5 to 6 lbs. of powdered arsenate of lead with 2 lbs. of "SPREADO" to the 200 gallon tank.



Arsenate of Lead
With "Spreado."

NOW Is the Time "SPREADO" You Need

Manufactured by

Miller Products Company

PORTLAND OREGON
GRANTS PASS, OREGON

Sold by

Oregon Growers' Co-operative Association
Salem, Sheridan, Roseburg and Medford, Oregon
Eugene Fruit Growers' Association
Eugene, Cresswell and Junction City, Oregon
Hood River Apple Growers' Association
Hood River, Oregon

Annual Conference of Horticulturists

HORTICULTURISTS, entomologists and plant pathologists of the Northwest and British Columbia held an important series of meetings at Hood River, Oregon, July 26 to 29, when they gathered for their fourth annual conference.

The conference was held under the direction of W. S. Brown, chief of the Division of Horticulture of the Oregon Agricultural College and was attended by 30 to 40 experts. Containing a list of important problems that are confronting the fruitgrowers and farmers of the Northwest the program brought out information and discussions that proved highly valuable to all present. The various colleges and experiment stations in Oregon, Washington, Idaho, Utah and British Columbia were represented and the comparative data secured on some of the foremost questions considered will lead, it is expected, to an improvement in a number of the methods employed in fruit culture.

An interesting phase of the conference were a number of demonstrations conducted in Hood River orchards by Gordon G. Brown and Leroy Childs of the Hood River Experiment Station. Social features were a dinner at the Columbia Gorge Hotel an automobile tour of the valley and a visit to Cloud Cap Inn, where 20 of the party remained over night and made the ascent of Mt. Hood in the morning.

At the close of the meeting it was decided to formally organize a body to be known as the Northwestern Association of Horticulturists, Plant Pathologists and Entomologists. Professor O. M. Morris of the Washington State College was elected president, and a vice-president and secretary-treasurer will be elected later. It is the plan to have each of the three sciences represented by an officer.

An AppleBook of Notable Interest

"THE Commercial Apple Industry of North America," is the title of a new book by J. C. Folger, assistant secretary International Apple Shippers' Association, and S. M. Thompson, formerly fruit crop specialist, U. S. Department of Agriculture. Professor Brown of O. A. C., has reviewed the book and considers it very good—"one of the most up-to-date books on the subject," is his comment.

In collecting material for this work, the authors have visited practically every important apple-growing country in the United States; first in connection with a special investigation of the cost of producing apples in important regions, conducted by the office of farm management, U. S. Department of Agriculture; and later as fruit crop specialists engaged in organizing a system for estimating the commercial apple crop of the United States.

The scope of the book is a wide one covering every phase of apple growing, handling and marketing, and *Better Fruit* recommends it to those seeking a volume containing information of this character.

The state of Washington supplied more than half of the country's box apples in 1920.

Worth Many Dollars

LEWISTON VALLEY WATER Co.
Lewiston Orchards

Lewiston, Idaho, June 21, 1921.

Better Fruit Publishing Co.,
Portland, Oregon.
Gentlemen:—

I have before me the June copy of Better Fruit. I wish that every fruit grower in the Northwest could read this issue.

You will find inclosed a list of the fruit growers on the Lewiston Orchards. I hope you will be able to mail each one a copy of the June number. This one issue is worth many dollars to any fruit grower.

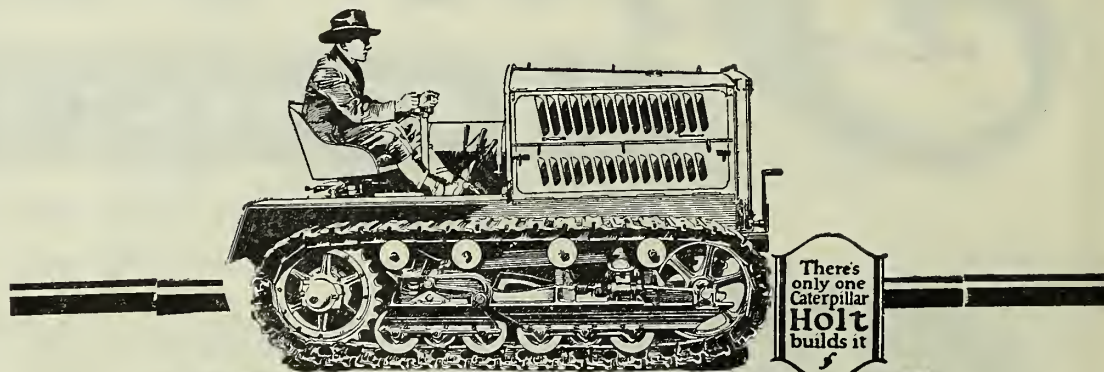
Yours truly,

(Signed) DAVIS S. WALLACE,
Manager

**BEST SERVICE-
QUALITY & PRICES**

**PERFECTION IN
FRUIT
LABELS**

**THE
SIMPSON & DOELLER CO.**
1423-24 NORTHWESTERN BANK BLDG.
PORTLAND, OREGON.
E. SHELLEY MORGAN
NORTHWESTERN MANAGER
WE CARRY—AND CAN SHIP IN 24
HOURS—STOCK LABELS FOR PEARS,
APPLES, CHERRIES & STRAWBERRIES.



Dependability
the
dominating feature
of "Caterpillar" Tractors
The HOLT

MANUFACTURING COMPANY

Stockton, California

Peoria, Illinois

Los Angeles, Cal.

Spokane, Wash.

San Francisco, Cal.

American Apples In China

FROM a bulletin just issued by the United States Department of Agriculture it is interesting to learn that the market for the apples of the Northwest in China is more susceptible of expansion than for other fruits. The varieties that meet with the most favor in China are the Yellow Newtown, Spitzenberg and Winesap and the grade that is said to be best suited to the trade is a fancy or No. 2, although an extra fancy is wanted in limited quantities for the Christmas trade. The sizes that are the most popular with the trade run from 120 to 163, but both larger and smaller sizes have reasonable demand and sale. The largest quantity of apples sent to China from the United States in any one year was approximately 40 carloads. American apples are sold in China by the pound and retail at \$5 to \$6 a box.

Get ready for the campaign against anthracnose in your apple trees. Remember that a clean crop next year depends on the thoroughness with which you spray this fall.

Ridley, Houlding & Co.

COVENT GARDEN, LONDON

WE ARE

Specialists in Apples and Pears

CABLE ADDRESS: BOTANIZING, LONDON

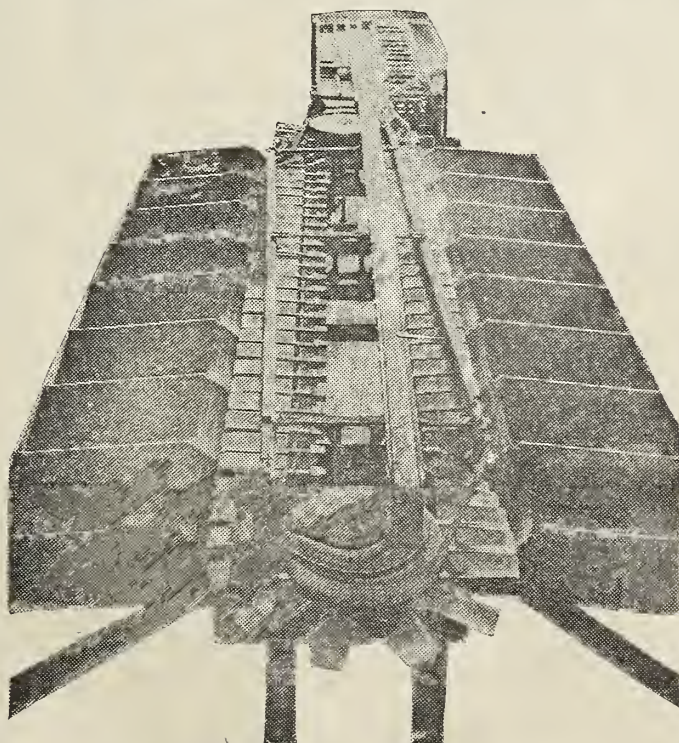
Codes: A. B. C. 5th Edition and Modern Economy

Before You Buy a Grader See The NEWELL!

A Perfected Weighing Machine, Accurate and Efficient

The operation is simply this: Fruit is raised automatically from hopper to sorters, by conveyor belt, fixed with rollers to prevent bruising. Passed by the sorters, it is deposited by belt conveyor, one at a time, upon aluminum scales, which are attached to single sprocket chain, carrying fruit along the side of the shunt-board, which gradually pushes them farther out on scales, until their weight tips scales, depositing them in packer's bins. All fruit of same weight will tip scales at same bin; it must function!

If fruit is running large, shunt board may be set in; if small, set it out. This is the only necessary adjustment.



Made in Two, Three and Four Section Models

*A Few
Outstanding
Features of the
NEWELL*

Low Hopper—no step up when filling.

Automatic feed from hopper to sorting table; controlled by head sorter without leaving his place.

One piece scale with no delicate adjustment to get out of order or wear out.

Scales on SINGLE chain, not double.

TIMOTHY NEWELL, Manufacturer

Parkdale, Hood River Valley, Oregon

BETTER FRUIT

Published Monthly
by

Better Fruit Publishing Company
Twelfth and Jefferson Streets
PORTLAND, OREGON

W. H. WALTON.....Editor
JERROLD OWEN.....Associate Editor
C. I. MOODY.....Advertising Manager
EDWIN C. WILLIAMS.....
....San Francisco Representative, Hobart Bldg.

STATE ASSOCIATE EDITORS

OREGON—C. I. Lewis, Horticulturist.
WASHINGTON—Dr. A. L. Melander, Entomologist; O. M. Morris, Horticulturist, Pullman.
COLORADO—C. P. Gillette, Director and Entomologist; E. B. House, Irrigation Expert, State Agricultural College, Fort Collins.
ARIZONA—F. J. Crider, Horticulturist, Tuscon.
MONTANA—H. Thornber, Victor.
CALIFORNIA—C. W. Woodworth, Entomologist, Berkeley; W. H. Volck, Entomologist, Watsonville; Leon D. Batchelor, Horticulturist, Riverside.
INDIANA—H. S. Jackson, Pathologist, Lafayette.

All Communications should be addressed and Remittances made payable to

BETTER FRUIT PUBLISHING COMPANY

Subscription Price:

In the United States, \$1.00 per year in advance.
Canada and Foreign, including postage, \$2.00,
payable in American exchange.
Advertising Rates on Application.

Bulk Apples

Apple growers in the Northwest who have been marketing their product in bulk will do well to ponder before continuing this practice. The demand and higher price for apples from this section has almost entirely been built up by superior packing methods and employing a container that is more convenient and attractive to the consumer. Quality and grading have played their part, but above all the pack has been the thing that has made Northwest apples renowned the world over and made the big development of the apple industry in the Pacific Northwest possible.

Other apple growing sections know this and they are commencing to wake up to the advantages that may accrue to them by utilizing boxes instead of barrels. A case in point was the recent visit to this region of an apple handler from Pennsylvania for the purpose of familiarizing himself with our packing methods and obtaining box material. Shipping 20,000 barrels of Albermarle Pippins from the Blue Mountain district of Virginia annually, he stated that he was satisfied that he could sell twenty boxes of these apples packed as they are in the Northwest where he now sold two barrels, and get a higher price.

This should, we think, cause reflection on the part of Northwest bulk apple shippers before they widen the wedge that may prove disastrous to the industry. To make the apple industry in the far West pay, it must receive a superior price for its product. Its long distance from the big fruit consuming centers of the country make this higher price imperative. Without it the industry cannot survive.

Higher packing costs was the reason given for shipping bulk apples from the Northwest. Why continue a practice that is not now necessary and may mean disaster.

A Sop, Not a Reduction

When all is said the cut in railroad freight rates on fruit from the Pacific Coast to Chicago and the Atlantic Coast is not a reduction but a sop handed out apparently to avoid further action for adequate relief.

What the alleged cut in the rate really amounts to is a shaving of the old rate of 12½ cents per 100 pounds or 6¼ cents on a box of apples. This applies to points west of Spokane, the latter receiving a cut of 17 cents per 100 pounds or 8½ cents a box. For granting this generous favor to the fruit shippers of the Northwest they have the valuable storing-in-transit privilege taken away unless they are willing to pay an extra 10 cents per 100 pounds on such fruit as may be stored before it reaches its destination. As it is necessary to store big quantities in this way the cut will amount on much of the fruit that goes to Eastern markets to the highly gratifying sum of 3½ to 1¼ cents per box.

It can be truly said that the fruit growers of the Northwest in applying for a cut in freight rates asked for bread and were given stone.

Grade and Pack

We thoroughly believe that this will be a year in which profitable prices will be realized for apples in the Pacific Northwest. Eastern frost damage in the spring and unfavorable conditions in many sec-

tions should assure a heavy demand.

But the fruit must be of good quality. It will be a serious mistake for the grower to attempt to market at a profit, any off-grade, wormy, or poorly sized fruit.

We urge the grower to do everything possible to produce good quality fruit. Spraying must be timely, judicious and thorough. Also it is necessary that more attention be paid to grading the fruit. The successful grower will remember these things and will be certain of a market again next year.

To compete on the open market, fruit from the Northwest must be well graded, well packed and in desirable containers.

A Double Saving

Marketing experts in the United States Agricultural Department call attention to the fact that enormous losses are caused annually because large quantities of fruit is frozen in transit.

Last winter shippers of apples in the states of Oregon, Washington and Idaho filed claims against the railroads amounting to over \$3,000,000 to cover losses from freezing. To assist in reducing these losses the Bureau of Markets of the department has distributed as widely as possible information relative to the proper methods of loading and heating cars. It has also practically completed the designing of a heating equipment that it expects will very materially reduce these losses if employed and it is hoped it will.

There will be another and a safer way, however, of avoiding these losses from frozen fruit—shipping all the fruit tonnage possible from the Northwest by water transportation. In the initial stage of carrying fruit from the Pacific Coast to the Atlantic or to foreign markets by steamer, there may be some slight loss by improper ventilation, but this will be corrected. Entire shipments will not be ruined.

Most important a double saving will be effected—a lower transportation cost and avoiding a loss by freezing.

Shortage of Apple Boxes Probable

THE habit of pre-financing fruit box deals by box manufacturers of the Pacific Northwest to growers and dealers will, it seems, this season mean a shortage of apple boxes.

For months past manufacturers have urged the advance buying of apple boxes in order to more evenly distribute the manufacturing and delivery of the heavy demand that is made on manufacturers during the closing months of the season when picking and harvesting of apples in the Northwest is at the peak.

To encourage early buying, make for a more even distribution of delivery of apple boxes and eliminate the extreme market conditions as was experienced in 1919 with an uncertainty on a rising market, the same uncertainty prevailing in 1920 on a declining market, it should be understood the early spring market should prevail during the life of each season's crop.

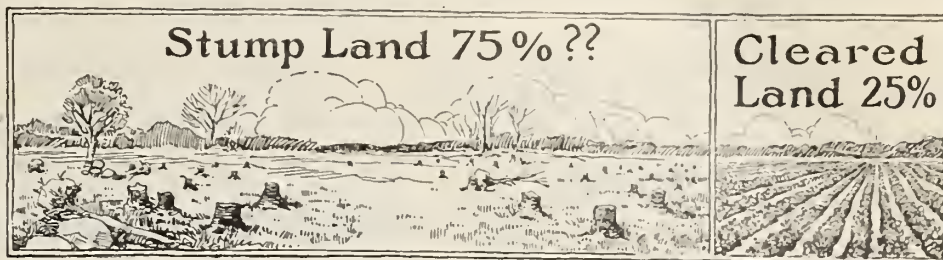
Owing to the unusual financial situation this year most manufacturers were unable to extend credit as has been the rule in former years. Growers and dealers were to a great extent in the same depressed condition, which resulted in increased efforts to hold manufacturers to their former practice of extending credit. Most manufacturers being utterly unable to meet this situation has resulted in less apple boxes having been furnished this season than any year in the history of the industry.

With less than a 25 per cent normal demand in the salmon box business for West Coast manufacturers this season, they were forced to increase efforts in a further development of other markets. The result of this has developed considerable business from eastern territory as well as from foreign fields. This came from concerns who placed large contracts and take the cash discount on delivery. These early efforts in that direction it seems are now bringing results, enhanced by the apparent break of the "buyers' boycott" of all merchandise and food products.

With this increased business from miscellaneous commodity shippers and with about 70 per cent of the apple box requirements together with pear and peach boxes and the usual demand for dried fruit, et cetera, a great many manufacturers find themselves unable to take additional business for immediate delivery.

Growers and dealers anticipating a bumper crop now sense the situation and are endeavoring to have apple boxes delivered promptly.

West Coast plants are trying to meet the situation through the increased length of the working day, while others are operating night shifts. One plant is operating a ten-hour day shift with an eleven-hour night shift. Another is operating three eight-hour shifts.



Take an Inventory of Your Land!

ARE you making as much money as you can out of your farm? Just stop and do a little figuring for a moment. This table will make figuring easier. Fill in the proper figures:

	Acres	Profit	Loss
1. Under cultivation.....			
2. Stump and swamp land.....			
3. This same idle land (2) cleared producing profit per acre equal to (1)			
4. Present total profit (1-2).....			
5. Possible total profit (1+3).....			

Is it not just plain *good business* to make idle stump and swamp land into producing land—to shift it from the loss column to the profit column?

The dynamite method is the usual method today for stump and boulder blasting, ditching and tree-planting as well.

But to make sure of the best results in land clearing always use



STUMPING POWDERS

Du Pont and Repauno Brands

It is the most reliable, efficient and economical explosive on the market. Constant improvement, through over a hundred years of manufacture has made it so.

One hundred page book, "Farmers' Handbook of Explosives," giving complete instructions for the use of dynamite on the farm, sent on request.

E. I. DU PONT DE NEMOURS & CO., INC.

PORTLAND

SEATTLE

SPOKANE

Loganberry Borers

THE loganberry crown borers, which occur as elongated white worms tunneling within the crown and roots of the loganberry and raspberry, are causing an unusual amount of injury this season.

Seriously injured plants should be dug and burned. The borer tunnels up in the new cane and girdles it from within, forming a bluish ring around its base and causing the cane to wilt. Because of this habit the best method of control as yet developed is as follows:

Visit the fields in late June and again in July looking for the wilted canes, typical evidence of borer work. Grasp the wilted cane in the gloved hand and remove it by twisting and pulling at the same time. The borer will generally be in the severed cane, but in case that it is not, a wire should be pushed down into the stub left on the bush. The borer in the cane will die a short time after the cane has been broken off. Where rigorously followed up this treatment will reduce the infestation to a negligible degree.

How to Propagate Small Fruits

GRAPES

GRAPES are propagated in the fall and winter by means of cuttings. Well matured canes of average thickness, having nodes or joints somewhat close together for the variety, make satisfactory cuttings. Overgrown "bull canes" should be avoided and the wood should be of last summer's growth. Such suitable growth therefore as is cut away in the annual pruning may be used for propagating purposes. Having selected a suitable cane, begin at the butt and cut off just below the node, then skip a node and cut off the cutting just two inches above the next or third node. This is repeated until the best part of the cane is used up. The cuttings will average about a foot in length and should be tied up in bundles and packed in moist sand or sawdust until spring. Or they may be buried upside down in the ground in a well drained spot. For these varieties which do not root readily from cuttings one or more canes are pulled down to the ground in the spring and covered with soil, leaving a part of the terminal end out of the ground. Roots or sprouts will generally be thrown out at the nodes and each rooted piece will make a new plant.

BLACKBERRIES

THE bushes of the blackberry usually sprout up readily and these may be transferred to a new location. During the winter, roots a quarter to a half an inch in thickness may be dug and cut into three-inch lengths. These are stored away as directed for other cuttings and planted out in the nursery row in the spring.

RASPBERRIES

THERE are three kinds—the reds, blackcaps and purple canes or hybrids. The reds sprout profusely from the roots and are multiplied the same as blackberries. With the blackcaps and purple varieties new canes are produced from the long drooping branches which bend down to the ground and take root. In the spring these plants are cut away from the parent plant and are ready for setting.

GOOSEBERRIES AND CURRANTS

THESE are easily rooted from cuttings of the new wood which are taken any time after the leaves have fallen. Cuttings therefore, may be made from such new wood as is pruned out. They are made about eight or ten inches long, tied in bundles and buried upside down in a well-drained location or packed in moist sand or sawdust in a cool cellar. The plants may also be propagated by drawing the soil up in a mound over the bushes, covering them about a fourth of the way up. Each one of the branches will take root in the course of one or two season's growth and then they can be separated to form new plants.

Apples, Pears, Peaches Potatoes, Onions

and all kinds of Fruit and
Produce Bought for Cash..

Address us as to what you
have to offer.

WILLEY FRUIT CO., Inc.

215-217 Washington St. Portland, Ore.

TORO BRAND AGRICULTURAL SULPHUR



Improves alkali soil, transforms potash and phosphorous into plant food. Prevents wire worms, smutty grain and potato scab. 220 lbs. per acre has increased crops up to 600 per cent.

Write for circulars 6, 7 and 8, price list and samples.

DIAMOND "S" BRAND for Lime-Sulphur Solution.
ANCHOR BRAND for dry dusting. **CARBON BISULPHIDE** for rodent control.
SAN FRANCISCO SULPHUR CO.
624 California Street
SAN FRANCISCO, CAL.



Prince Albert's a new note in the joys of rolling 'em!

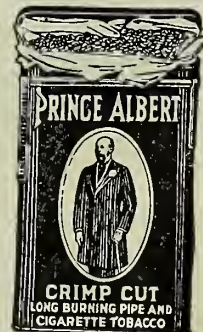
Talking about rolling your own cigarettes, you've got a handful-of-happiness coming your direction when you pal it with Prince Albert and the makin's papers! For P. A. is not only delightful to your taste and pleasing in its refreshing aroma, but our exclusive patented process frees it from bite and parch! You smoke P. A. with the bars down!

And, for a fact, rolling up Prince Albert is mighty easy! P. A. is crimp cut and stays put and you whisk it into shape before you can count three! And, the next instant you're puffing away to beat the band!

Prince Albert is so good that it has led four men to smoke jimmy pipes where one was smoked before! It's the greatest old buddy-smoke that ever found its way into a pipe or cigarette! And you'll o. k. that say so!

Prince Albert is sold in toppy red bags, tidy red tins, handsome pound and half pound tin humidors and in the pound crystal glass humidor with sponge moistener top.

PRINCE
the
national
joy
smoke
ALBERT



Copyright 1921 by
R. J. Reynolds
Tobacco Co.
Winston-Salem, N. C.

Tree Protectors

MECCHANICAL protectors are recommended for young trees on new ground, as they ward off attacks of cut worms, bud weevils, click beetles and other pests that prey on opening buds. Protection from ants that carry aphids into cherry trees is also recommended by the use of protectors by the entomologists of the Oregon Agricultural Experiment station. For this purpose cotton batting strips about five inches wide and long enough to reach around the tree are endorsed as excellent. Tie the band loosely at the lower edge with a string and then grasp the upper edge and roll it down over the lower edge. Tree tanglefoot is also recommended. A band three-fourths of an inch wide is the most efficient. If too wide the bands injure the young trees.

DESTROY ROADSIDE WEEDS

Because—

1. They act as centers of weed infestation for adjoining fields.
2. They may be carried for many miles by passing vehicles and animals.
3. They harbor harmful insects and plant diseases.
4. They create insanitary conditions.
5. They are unsightly.

Methods for destroying roadside weeds, approved by specialists of the United States Department of Agriculture, are:

By—

1. By mowing twice a year while they are in full bloom, usually in June and August.
2. Utilizing the roadsides for growing hay.
3. Grazing with tethered animals.
4. Converting weedy roadsides into lawns.

GRADE ALL ROADSIDES SO THE WEEDS CAN BE CONTROLLED.

THE price set by the California Pear Growers' Association this year for Bartlett pears of No. 1 grade is \$61.75 net to grower; No. 2 grade, \$33.25 per ton. Last year the price received by the association was \$100 per ton. The organization decided to limit the tonnage to be sold to the canners to 60 per cent of the pack.



Growers' and Packers' Equipment

We Manufacture:

LADDERS
BOX PRESSES
PACKING CHAIRS
BOX-MAKING BENCHES and
AUTOMATIC ELEVATORS all
GRAVITY & POWER CONVEYOR kinds
POTATO GRADERS AND SIZERS of
PRICE FRUIT SORTERS AND SIZERS Special
NELSON FRUIT SORTERS AND SIZERS Equipment

PRICE "PRICE PRODUCTS"

Before You Buy Others

We maintain a consulting department which will be very glad to advise with you in planning the installation of equipment for your packing house or warehouse.

Illustrated Booklets and Price List on Request

Fruit Appliance Company

Successors to

Price Manufacturing Company, Inc.

YAKIMA, WASHINGTON

SIMONS, SHUTTLEWORTH & CO., Liverpool and Manchester

SIMONS, JACOBS & CO., Glasgow

GARCIA, JACOBS & CO., London

SIMONS (Southampton) LIMITED, Southampton

Agencies and Representatives in Every Important European Market

European Receivers of American Fruits

For Market Information Address

SIMONS, SHUTTLEWORTH & FRENCH CO.
204 Franklin Street, New York

SIMONS FRUIT CO.
Toronto and Montreal

SIMONS, SHUTTLEWORTH, WEBLING CO.
12 South Market Street, Boston

OUR SPECIALTIES ARE APPLES AND PEARS

Spraying Methods

(Continued from page 6)

the upper and under surfaces of the leaves with spray in order to keep them clean as it is to spray the fruit. In fact if we keep the foliage clean the fruit is incidentally protected. The spray required for the best results in scab control is one broken up in very fine particles. The spray can be made fine by cutting down the openings in the discs of the guns when used on a small outfit, but in so doing the "push" behind it is lacking and as a result little spray reaches the tops of the trees—none if the wind is blowing. We have found as high as 45 per cent scab infection occurring in the tops of the trees and only 5 or 6 per cent in the lower parts of the trees where growers have attempted control with inadequate equipment. Adjoining orchardists with sufficient equipment have completely controlled this disease.

What is true with the control of codling moth and scab is true also of other orchard troubles. The tops of trees must be sprayed if results are to be expected. A sprayer of generous capacity is the most gratifying implement that can be owned by an orchardist and it pays for itself in a very short time if properly handled.

Users of spray guns are often fooled in the character of the work that they are doing. A very great percentage of the orchardists in the Northwest often use insufficient material per tree. This is particularly true of the early spring applications. This failure to use sufficient material is largely due to the fact that the operator sees the spray high up in front of him, but does not see exactly to what extent or to what height he has covered his trees. The result is the worker hurries on and the tree does not receive spray sufficient to cover it thoroughly or give it the protection needed. The actual cost of the spray is usually the least expensive of the entire operation and many growers could materially increase the degree of pest control that they are now obtaining by using more material and distributing it better over the tree when they spray. Spraying can be and is, over done. This, however, is much more the exception than the rule. There are many growers who can use this advice to their advantage.

The average spray requirements of trees of various ages and for different applications has been determined by the Hood River station. Figures were obtained from growers who have been successful in their handling of various orchard troubles. The following table shows the result of the investigation; for the most part these figures are conservative:

Age of tree	Miscible Oil Gallons per tree	Summer Applications for scab and codling moth	Fall Bordeaux
11	4.1	4.1	...
12	4.5	4.5	5.0
13	5.6	4.5	5.1
14	7.0	5.2	...
15	7.2	5.6	6.1
17	8.0	6.0	7.4

Beekeepers in the Yakima valley are again declaring that the honey industry in that section is doomed unless orchardists change their methods of handling arsenate of lead spray in orchards, where alfalfa is grown.

"The Wise Men of Appletree Town"

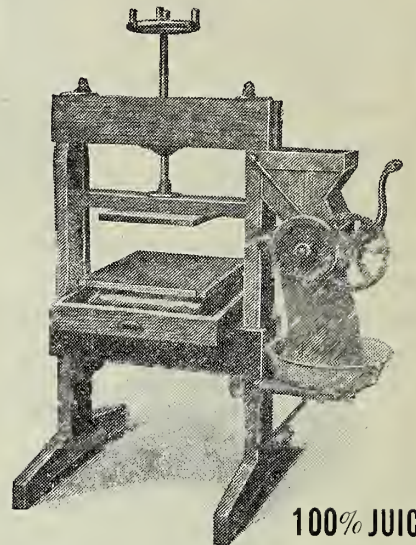
—are the men who choose their banking connection with the same discrimination they use in pruning. The First National Bank, because of its size and comprehensiveness of its departments, is particularly equipped to offer the horticulturist the most in banking service.

Its facilities and the personal interest of its officers are at your disposal.

The First National Bank OF PORTLAND, OREGON

The first national bank west of the Rocky Mountains

Orchard Queen Cider Mill



100% JUICE

It doesn't crush the apples, but grates or grinds them, breaking the juice cells so that when the pomace is pressed in the sanitary cloth sacks, all of the juice is extracted.

Orchard Queen is the simplest, easiest operated, cleanliest and most efficient of cider mills. No metal in cylinder or hopper to discolor juice. Operated by hand or power. Made in two sizes. Our folder explains in detail the construction and operation of the Orchard Queen Mill. Write for it.

Puffer-Hubbard Manufacturing Co.

3203 East 26th St. Minneapolis, Minn.

MYERS ELECTRIC HOUSE PUMPS

Many homes and farms are being modernized by handy water facilities, and their water supply instead of being a heavy burden as it always has been in the past, is now their best servant. MYERS ELECTRIC HOUSE PUMPS, DIRECT WATER SYSTEMS, HYDRO PNEUMATIC PUMPS and CYLINDERS are playing an important part in this change by making it possible for any home anywhere to have running water at the turn of a faucet for household use—bath, kitchen, laundry, toilet; for stock watering, sprinkling fighting fire and innumerable other purposes.

MYERS PUMPS for Private Water Systems are simple, easy to install and operate, fully proven and dependable. They are designed and built in many styles and sizes, and thus will meet your requirements as to capacity, depth of your well or cistern and method of operation. If you are still carrying water from some outside source, you are interested in MYERS "Honor-Bilt" PUMPS for a Myers Water System will save you more real hard work every day in the year than perhaps any other device in your home or on the farm.

Write immediately for copy of our late Catalog, No. HP20—Sent to anyone without the least obligation

THE F.E. MYERS & BRO. CO.

ASHLAND PUMP AND HAY TOOL WORKS

NO. 135 ORANGE ST.
ASHLAND, OHIO.

Pacific Northwest
Distributors



Spokane, Wash.
Portland, Oregon

BUY FROM THE LOCAL MITCHELL DEALER

Prune Drying

(Continued from page 8)

holes on the four sides of the chamber. This practice need not interfere with the accustomed construction of the tunnels adjoining each other.

From the various types of driers and conditions of drying, that is to say, temperatures, humidities and air flows, in use for the drying of prunes, it is obvious that the success attained is the result of methods developed empirically. Scarcely any scientific information is available for use in commercial practice, the driers depending upon their own experience or the experiences of others for methods of procedure in drying.

Figures compiled by the Market Reporter of the United States Agricultural Department show that the heavy seasons for barreled apples have come in the even years and for boxed apples in the odd years. Shipments of boxed apples have been increasing rapidly, but the shipments from barreled sections for the past season were about equal to the box and barrel movement of 1918-19.

The 1920 apple crop totalled 105,000 cars. Of this amount 70,000 cars were barreled stock. Shipments of Northwest box apples were 10,000 cars below the movement of the preceding season.



F.C. Stettler Mfg Co.
 Portland — Oregon
 Lithographers
 Color Printers
 Labels
 Cartons
 Folding Boxes
 Cut Outs
 Display Cards
 Special Advertising
 Stiff Boxes Plain and Fancy



THE OLD WAY; THE NEW

The Box Handle Company

of 800 First Avenue, South, Seattle, Washington has become a benefactor to the orchard man, the packer, the expressman, the produce man, and all others who handle boxes.

The man who works in the orchard can only pick up one box at a time and it is some strain to pick the box up from the ground. With a pair of handles he picks up two boxes and carries them with ease. He is not half so tired when night comes, and does as much work as two men, which cuts your labor down.

The apple season is short at the best. You don't lose any apples out of the box by using the handles. You get a better percentage of packing because the apples are not bruised by using box handles.

This handle will lift any size box from 15 to 22 inches long. Every rancher who owns a ranch from 10 to 50 acres should have from 1 to 12 pairs of handles.

Your stomach won't be sore or your back lame when night comes if you will use the box handles.

The prices are \$2.00 for one handle or \$3.50 for a pair.

After you have used a pair for one day, you wouldn't take \$20.00 for them if you couldn't get another pair. Don't let this opportunity get away. Buy now. Send us \$5.00 and let us send you one pair by Parcel Post. We feel satisfied that you will buy more if you need them.

The Box Handle Company

800 First Avenue, South
 SEATTLE, WASH.

Northwest Notes From Here and There

OREGON

EARLIER estimates of the Hood River apple crop placing it at 2,500,000 boxes, are now said to have been too high and those familiar with crop conditions in the valley this year state that the yield will not be more than 1,800,000 boxes and possibly as low as 1,500,000. The unusually heavy blossoming caused the highest estimates. Much of the fruit, however, failed to set and the

loss from the June drop was very heavy in many sections of the valley. The output, it is stated, will be of exceptionally high quality and with the addition of many new facilities for housing, storing and handling the crop is expected to move to market in fine condition.

UP to the middle of July the Oregon Growers' Association had shipped 29 cars of its Mistland brand of prunes for export to England. Establishing a demand for Oregon prunes in England is looked upon as a fine stroke of business, as there is a continuous demand for this fruit owing to it being popular in English homes and eating houses the year around.

THE report comes from Vale that the entire apple crop of the Brogan district near there was recently sold to an eastern buyer at a price of \$50 per ton for all varieties except Delicious which brought \$75 a ton, the fruit to be delivered in bulk. Some box apples that were sold brought from \$2.00 to \$2.50.

KING'S Products Company from its plant at Salem shipped its first car of the 1921 crop of dehydrated loganberries recently. The car was part of a large shipment which the company has sold in the East. The King's company has also shipped 2,000 barrels of Maraschino cherries.

The Hood Shock Preventer



FOR ALL CARS

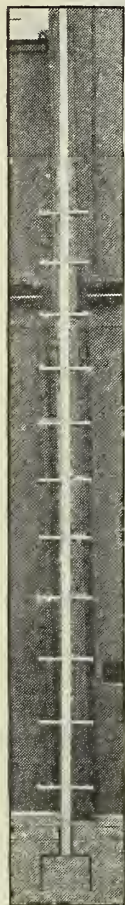
Saves springs, brakes, gasoline, tires, time, irons out the road, Snubs the bumps. Eliminates side-sway. No rattle. Be your own judge as to the merit of

THE HOOD

Satisfaction Guaranteed
Ford Sets, \$15. Others up to \$32.50
29 Park St., N. Portland, Ore.

Pond's Centipede Ladder

(Patent Applied For)



Ask your implement dealer to show you the latest invention in ladders for use in high trees. Made of iron, Oak and clear Douglas fir. Tall, strong, light weight, rigid, stable and reasonably priced, the last word in ladder efficiency. In tall trees it will cut your picking costs in half. Descriptive circular on request.

RUSSELL G. POND
(Forest Engineer)

Inventor and Shipper of
Pond Products
Parkdale, Hood River, Ore.

These were of the Royal Anne variety. Each barrel contained 250 pounds of cherries, a total of 500 tons of fresh fruit. The entire shipment comprised 20 carloads.

J. O. HOLT, manager of the Eugene Fruit Growers' Association, announces that the demand for canned fruits has picked up wonderfully recently and that the association has been compelled to turn down a number of orders for some of its output. Mr. Holt states that the increased business is due to the fact that buyers are just waking up to the real condition, which is that there is going to be a shortage of canned fruit this year. The Eugene association has this year canned over a million pounds of cherries and over half a million pounds of loganberries. It also recently finished an order for 25,000 gallons of loganberry juice.

PORTLAND capital having become interested in the big Sheridan juice plant the company has been reorganized and the plant will be operated on a much bigger scale than formerly and in addition to its output of loganberry juice will put out a line of original fruit confections. The capitalization of the company will be increased to \$75,000. George Brown, who has been manager of the company, will be retained in that position. The new members who will be added to the directorate are: J. P. Jaeger of Jaeger Brothers; Bert Haney, former United States attorney for Oregon; James Lynch, vice president of the Lumbermen's Trust Company; Fred Felter, editor of the *Pacific Drug Review*, and Fred W. Vincent, of the Vincent & Vincent Advertising Service.

BY the completion of the financing of the Savage Rapids irrigation project it is expected that 14,000 acres of fruit and other land in the Rogue River valley will be receiving water next September. The project has greatly stimulated interest in fruit growing in this section and is expected to be responsible for a big development in the near future.

J. A. ORMANDY, assistant general passenger agent of the Southern Pacific lines in Oregon who recently made a survey of fruit conditions in the Rogue River and Umpqua valleys, reports that between 1,600 and 1,800 cars of apples and pears will be moved this season from this section.

"You may be Sure"

says the Good Judge



That you are getting full value for your money when you use this class of tobacco.

The good, rich, real tobacco taste lasts so long, you don't need a fresh chew nearly as often—nor do you need so big a chew as you did with the ordinary kind.

Any man who has used the Real Tobacco Chew will tell you that.

Put up in two styles

W-B CUT is a long fine-cut tobacco

RIGHT CUT is a short-cut tobacco

Weyman-Bruton Company, 1107 Broadway, New York City

Mason, Ehrman & Company

Packers and Shippers

Office
74 North Fifth St., Portland, Ore.

"RED RIBBON"
BRAND
DRIED FRUITS

We pay cash at time of delivery

Handling a large part of the prune crop of Oregon and Washington

See us this season before disposing of your crop

LARGE quantities of strawberries and cherries have been barreled this season in the various packing plants in the Willamette valley. The berries were sorted in the same way as they would be for canning and then put into 50-gallon oak barrels and a full sack of sugar poured in each. The fruit is not crushed, but left whole. It is then put into cold storage to be put to various uses later. While this process has been utilized for loganberries for several seasons it is a new departure for the other small fruits.

WASHINGTON

BIG red apples will bring at least \$17,000,000 to 2,000 growers in the Wenatchee valley this year, according to W. T. Clark, who is known as the "father of Wenatchee," because of his activities in putting in the first irrigation system in the valley. Mr. Clark estimates that Wenatchee will produce a 15,000-car tonnage with an average price of \$1.50 per box.

J. R. WILSON, manager of large orchards near Waverly and Fairfield, is authority for the statement that the average cost of apple production in the Northwest this year has decreased almost 30 per cent over last year. Two of the principal items in this decreased cost cited by Mr. Wilson are boxes and labor. Boxes that last year cost 25 cents are being bought this season for 13 cents and labor that was receiving \$5 per day is this year being paid \$3 and \$3.50 per day.

THE state of Washington produces over 15 per cent of the apples of the nation and has increased its yield over 700 per cent during the last 10 years, according to a bulletin recently issued by the census bureau. Statistics compiled by the bureau show that Washington's apple crop for 1919 was 21,568,691 bushels, while the total for the nation was 136,746,154 bushels.

SNIPES MOUNTAIN, near Sunnyside, Wash., contributed \$15,000 worth of cherries to the Yakima valley's quota this season, it is reported. This is the largest crop ever harvested there. Practically the entire tonnage was shipped to Minneapolis.

FIGURES at the office of the Spokane Fruit Growers' Company place the Northwestern apple grower favorably this season as to crops and probable prices. While the United States crop is rated at 41.8 per cent of normal for 1921, as against 79 per cent in 1920, the Washington crop for 1921 is rated at 98 per cent of normal as against 85 per cent in 1920. The valley will produce about 75 per cent of the 1920 yield.

AN APPLE export agency for handling Wenatchee district apples abroad will be formed by Edwin Smith, formerly manager of the Wenatchee Valley Traffic Association. Mr. Smith spent several years with the United States bureau of markets before coming to Wenatchee.

THE Ryan Fruit company announces the purchase of the \$20,000 brick warehouse of the Sunset Fruit & Produce Company at Wapato. The structure is two stories, has 9,000 square feet of space on each floor, and was built two years ago. H. R. Nosler, manager of the Yakima branch, will be superintendent, while the practical overseeing will be in charge of A. H. Cousins.

YAKIMA valley's first car of apricots left Sunnyside July 9, destined for Iowa. It contained 800 crates and, according to C. M. Holtzinger, averaged \$70 a ton to the grower.

THE cherry crop of the Wenatchee district will be less than 75 cars, instead of 125, as previously estimated. The crop will yield the growers about \$100,000, against over \$250,000 last year.

ASSURANCES that there would be a supply of refrigerator cars sufficient to take care of this season's apple crop were received at Yakima

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Half
Century



of
Service

*"Clothes make the man
Labels make the can"*

*Let us dress
your "Silent
Salesman"
to sell your
product.*

SCHMIDT LITHOGRAPH CO.

SEATTLE
LOS ANGELES
FRESNO

PORTLAND
SACRAMENTO
HONOLULU

• MANILA •

SAN FRANCISCO

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

Schmidt
LITHO
S.F.

recently from H. M. West, local representative of the Union Pacific system. The road, it is said, is making special efforts to see that the valley crop is protected.

THE Spokane apple district, including Spokane,

Stevens and Lincoln counties, will ship approximately 1225 cars of apples this year, according to an estimate made by E. B. Kelley, state horticultural inspector.

IDAHO

ACCORDING to the monthly report of the Idaho co-operative crop reporting service, the apple crop for the state fell off 153,000 bushels from last month, due mostly to several severe hail storms in Twin Falls and Nez Perce counties. The loss was particularly severe in the Lewiston Orchard district. There was a normal June drop and production is now placed at 3,314,000 bushels. Last year it was 3,360,000 bushels.

FRUIT and produce shippers in the Rupert district have recently written Senator Gooding of that state urging federal legislation toward the construction of a shipping canal from American

Box Shooks
East Side Box Co.

Manufacturers
**SPRUCE AND
HEMLOCK**

Box Shooks

Foot of Spokane Avenue
Portland, Oregon

Falls to Great Salt Lake, a distance of about 70 miles, in order that farm products from that section might be moved to market by water. It is stated by the shippers that the request is being made owing to high freight rates.

▲ ▲ ▲

NEWS from Boise is to the effect that the fruit on a number of apple orchards in that section has been sold to Denny & Co., of Chicago, the Cochrane Brokerage Company of Kansas City and A. T. Harmon & Co., of St. Louis. The apple outlook in Idaho generally is reported to be good and the prospects for a 1,000-car prune crop to be favorable.

What They are Doing in California

CALIFORNIA'S first Bartlett pears to be shipped to the Chicago market brought \$8.50 per box, according to recent telegraphic advices. The pears were a small lot shipped by express from the orchard of H. D. Kercheval, one of the largest shippers in the Sacramento River district.

▲ ▲ ▲

COURTS in California are generally upholding the strenuous efforts that are being put forth by state and county officials to maintain the quality of the state's perishable products. A case in point was the recent fining to the extent of \$150 of a Japanese grower in the Imperial valley who shipped green cantaloupes.

THAT fruit and other crop pests may creep into a state under most unusual circumstances was shown in California during the past month when quarantine officers on the state line discovered

alfalfa weevils in the bedding of an auto camper who had been in Nevada. The occupant of the automobile had cut alfalfa in Nevada to place under his blankets for bedding.

<p>Musical Merchandise</p> <p>—</p> <p>Write Us</p>	<p>WE SAVE YOU MONEY!</p> <p>W. Martius Music House, Inc.</p> <p>1009 First Avenue, Seattle, Washington</p> <p>Everything Known in Music</p>	<p>SHEET MUSIC</p> <p>—</p> <p>Write Us</p>
---	--	---

	<p>"WENATCHEE" FRUIT AND VEGETABLE PICKING BAG (Carpenter's Patent)</p> <p>Made of heavy canvas, reinforced with leather, stitched with waxed harness thread, to a steel frame. Halter webb carries the load from the shoulders as suspenders. These patented features make it so popular, serviceable, practical and labor-saving.</p> <p>Send for Sample, \$2.50 Postpaid. Special Prices to Quantity Buyers</p> <p>C. A. CARPENTER 3837 35th Ave. S. W. SEATTLE, WASH. Also write the Manufacturers and Distributors SCHEFFER & ROSSUM CO. ST. PAUL, MINNESOTA</p>
---	--

Correct Lubrication

is the most important factor in the successful operation of your tractor **ZEROLENE** is correct lubrication

A grade for each type of engine

STANDARD OIL COMPANY
(CALIFORNIA)



Our Inquiry Department

COVER CROPS

WHERE the rainfall is limited during the growing season and the irrigation supply restricted is it advisable to plant alfalfa in an apple orchard?—J. H., Washington.

No. Under the circumstances you mention, the alfalfa, which requires large quantities of water to mature properly, will make a scanty growth and is liable to rob your trees of their share of moisture. If you want a mulch or cover crop it would be better to plant vetch or clover under the conditions you have outlined.

▲ ▲ ▲

PRUNE TREE TROUBLE

The leaves on my Italian prune trees are turning brown and falling off. The prunes are either turning red or yellow and are dropping off. This orchard is in blue grass heavy sod. I have sprayed and there are no insects in this orchard. It has plenty of water. Could you tell me what to do or could you refer me to someone who could? H. L. E., Idaho.

From what you tell us we are inclined to believe that lack of nourishment and soil fertility is what is the trouble with your prune orchard. It is very probable that the heavy sod you tell us is in your orchard should be plowed up and the orchard placed under cultivation during the growing season. This heavy sod is undoubtedly robbing your trees of their vitality. We advise you to communicate with the Experiment Station of the University of Idaho at Moscow in your state.

▲ ▲ ▲

PRINTING ON APPLES

Will you please send me some information on the marking of apples by pasting some substance on them and then letting the sun redden them only where it is desired to have the printing?—K. M. C., Oregon.

The process of marking apples in the way you inquire about is as follows: A design is made on paper—the design then being cut out so there is a perforation allowing the sun to shine through. This design or lettering is pasted on the apples before they commence to color, and after they have obtained the highest degree of color these designs are removed. The portions of the apple covered up by this design or lettering, as you can see, remains the original color as when they were first pasted on. This is the process. It was first used in the Hood River Valley by a large firm of apple buyers who utilized the product for one of the prominent cafes in New York City. The idea, however, did not originate in America, having been taken from France.

These labels or designs are made with a steel die.

▲ ▲ ▲

PROTECTING TREES FROM RABBITS

I have 30 acres of apple trees set out in the Okanogan valley last spring and a year ago and expect to plant out 30 acres more in the next two years. Last fall I wrapped the trees with tar paper to protect them from rabbits, but snow came and packed and the rabbits ate all the twigs above the tar paper. Fencing and wire wrapping are too expensive. Is there not some formula to spray the trees with in the fall to stop the rabbits from eating them?—D. T., Washington.

There is no spray that you could use that would be effective in this case. That is, there is nothing of this kind that you could use without putting something on the trees so highly poisonous or in such large quantities that it would be prohibitive. As you say, wire wrapping is expensive, but it is the most effective and about the only means of preserving your trees under these conditions. There is one remedy that you might try and that is poisoning the rabbits with poison bait—carrots, or some other vegetable of which the rabbits are very fond, treated with strychnine might do the work. As you probably know, thousands of jack rabbits in the grain countries are gotten rid of in this way.

TRACTOR PRICES

FRUITGROWERS who are contemplating the purchase of a tractor will be interested in knowing that the International Harvester Company has just made a second cut in its tractor prices. The reduction has brought the International 8-16 and Titan 10-20 down to \$250, and the International 15-30 to \$550. These are the lowest prices the company has ever quoted on these makes of tractors, considering the equipment now included in the price which was formerly charged for as extras. Other tractor manufacturing companies have also announced reductions more or less sweeping. The result being that tractor farming, with present prices of fuel and lubricating oils, is now on a much more economical basis than is possible by using animal power.

SNAPSHOTS

Eastern Oregon is not looked upon as much fruit products from the little district of Cove of a fruit producing section, yet the value of the will this year total \$140,000. Forty thousand dollars of this amount will be realized from cherries. Its apple crop is valued at \$20,000, over \$10,000 worth of berries were shipped and other fruits make up the remainder of the amount.

▲ ▲ ▲

More than 50 per cent of the heavy soils of by the use of lime is the advice of W. L. Powers, Western Oregon can be made more productive

Chief of Soils of the Oregon Agricultural Experiment Station. ▲ ▲ ▲

The California Raisin Growers' Association estimates that the crop of raisin grapes in the Fresno district this year will total 135,000 tons. The production is estimated to be 80,000 tons below normal. ▲ ▲ ▲

The present production of honey in Oregon is nearly 100,000 pounds. Bee pasture is being rapidly increased owing to larger areas coming under irrigation.

NICE BRIGHT WESTERN PINE FRUIT BOXES AND CRATES

Good standard grades. Well made. Quick shipments. Carloads or less. Get our prices.

Western Pine Box Sales Co.
SPOKANE, WASH.
Catalog mailed on request.

NOW is the time to send to

Milton Nursery Co.

MILTON, OREGON
For their 1921 Catalog
Full Line of Nursery Stock
"Genuineness and Quality"

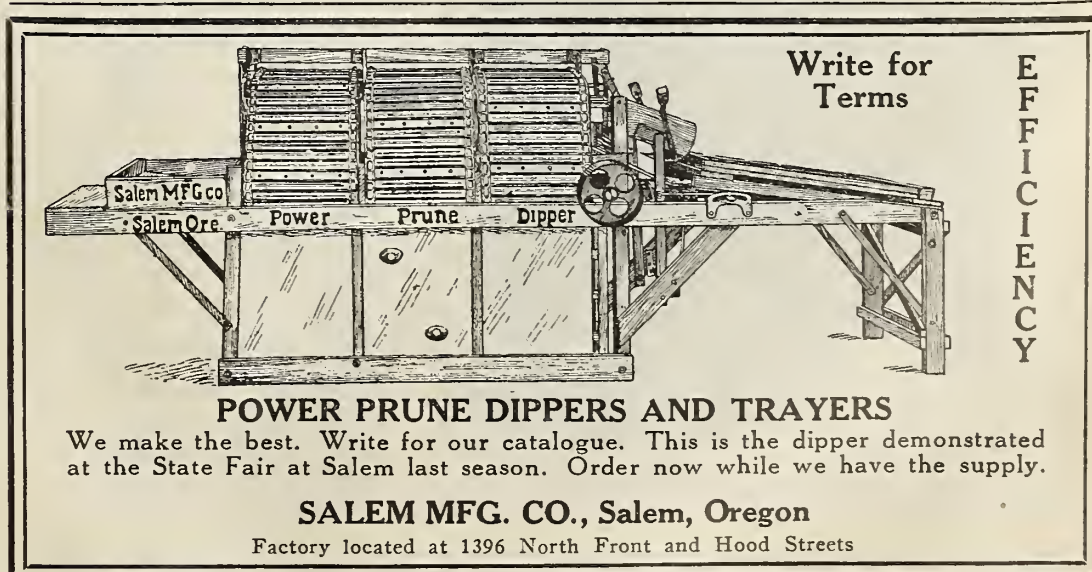


TRAUNG
LABEL & LITHOGRAPH CO.
LABELS
AND
CARTONS

FACTORIES
San Francisco
Seattle
Stockton

SALES OFFICES
Fresno
Sacramento
Portland
Tacoma

"The House of Quality & Service"



Write for Terms

POWER PRUNE DIPPERS AND TRAYERS

We make the best. Write for our catalogue. This is the dipper demonstrated at the State Fair at Salem last season. Order now while we have the supply.

SALEM MFG. CO., Salem, Oregon
Factory located at 1396 North Front and Hood Streets

EFFICIENCY

Marketing News of Live Interest

WHILE few apple sales have been reported so far in the Northwest a cash buyer in the Wenatchee district is reported to have recently paid the following prices for several varieties: Delicious, \$2.25, extra fancy; \$2 for fancy and \$1.75 for C grade; Rome Beauties, \$1.75, extra fancy; \$1.50 for fancy and \$1.20 for C grade; Winesaps, \$2, extra fancy; \$1.80 for fancy, and \$1.50 for C grade. The Skookum Packers' Association, it is said, has contracted for 250 cars at \$2.50 for extra fancy Delicious and \$1.75 for extra fancy Jonathans. These prices are taken to set the pace for the coming season. Winesaps, Jonathans and Rome Beauties were purchased at about the 1920 figure and Delicious slightly lower.

ACCORDING to estimates of the bureau of crop estimates, Oregon shows indications of having a larger pear crop this year than last. Pear yields in most of the other states are below normal and a good price for the crop generally throughout the country is expected. In some of the Eastern states the estimated yield has been placed as low as 17 per cent of normal. The apple crop in the Rogue River district promises a 25 per cent increase, the bureau reports, while some of the Willamette valley orchards are expected to produce nearly double the crop of apples they did a year ago. Other orchards in the latter region, however, which are affected with fungus will produce less.

THE second crop of everbearing strawberries in the Spokane valley came on in quantities July 25. The price was 15 cents per box and \$3.50 per crate. Loganberries, raspberries, blackcaps, currants, and cherries sold at \$2.50 to \$2.75 per crate. Washington peaches from the Yakima and Wenatchee districts brought \$1.10 to \$1.25 per crate. It is expected that the crest of the peach season in

Washington will be reached the latter part of August.

FEW offers have been made on the apple crop of the Yakima valley up to the present time as far as can be learned, but inspection of the orchards is being made by prospective purchasers and it is thought that the next few days will develop some idea of the prices orchardists in this section may expect.

LATE reports from Canada are to the effect that earlier estimates of an enormous crop there have had to be greatly reduced on account of the June drop. Notwithstanding the reduction the crop in Canada is expected to be larger than that of last year when it was 3,382,640 barrels.

BARTLETT pears in the Yakima valley are maturing rapidly and the estimate for the output this year by H. A. Glen, Northern Pacific general agent, is 1,650 cars. Quotations for high-grade fruit are ranging from \$30 to \$45 per ton. Twenty-five cars are reported to have been contracted for future delivery at \$35 per ton.

HOOD RIVER growers, who are discussing apple prices, are expecting figures around \$2 a box, according to a late report. The opinion there is to the effect that the demand for the fruit of that section will start at a considerably lower figure, but will soar as the season advances. The average price received at Hood River last year was \$1.35 per box.

PROSPECTS for fruit in general throughout the United States declined during the month of July. Lack of rainfall in some sections coupled with a heavy drop is reported from most states. The peach crop is small in most sections and the pear crop varies from a half crop to failure in most states.

Ample Cold Storage Space

offered in fire-proof modern building within 48 hours of New York and other Eastern points. Storage - in - transit rates. Low storage rates. Ample space due to failure of Virginia apple crop.

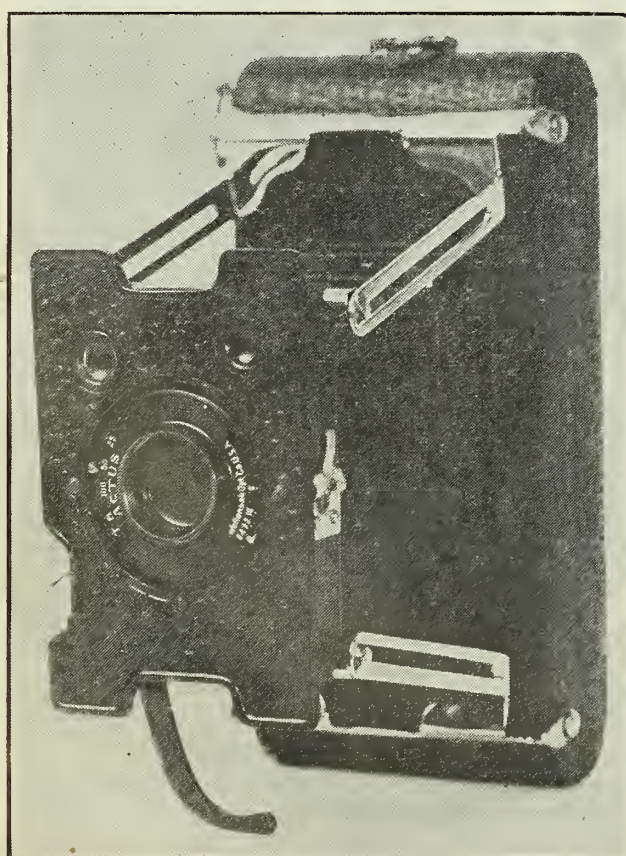
Write

WINCHESTER COLD
STORAGE COMPANY

WINCHESTER, VIRGINIA

DON'T WAIT ANY LONGER

Get a Camera FREE!



Anyone can earn one of these handsome Ansco 2 1/4 x 3 1/4 Cameras in his spare time. Look on page 22 of the July issue for full particulars, or drop a post card to Better Fruit, saying you want a camera. Lots of people are getting them, why not you? It is really very easy. It only takes twelve subscriptions, including your own renewal. Any other renewal subscriptions at \$1.00 each will count the same as new ones. We guarantee you a generous reward whether you secure two subscriptions or twenty.

**BETTER
FRUIT**

12th and Jefferson Streets
Portland, Oregon

At the Sign of the Fir

Do You Like Your Letterhead?

We have just one recipe for making a good letterhead. It is: Mix (1) sales experience, (2) a knowledge of design, and (3) common business sense.

This combination results in good stationery at the lowest possible cost.

It is rare, indeed, that you find all these "ingredients" combined in one organization. But you do in Arcady.

Telephone Main 8829

The Arcady Company
Complete Advertising
Service

WRITING
PRINTING
MAILING
ARCADY BLDG.



MULTIGRAPHING
MAILING
LISTS
12TH & JEFFERSON

Oregon Growers' Association Notes

A REVIEW of the activities of the Oregon Growers' Co-operative Association shows that on its second anniversary, July 26, this year, it had grown in membership from 137 to 1,836 with a fruit acreage under its control of more than 30,000 acres. During this time the organization has met with strong opposition, unfavorable conditions in the fruit industry and a financial depression, but is now declared to be in a better condition to be of service to its members than at any time since it was formed. It recently added 14 members with an acreage of 265 acres. R. C. Paulus, General Manager of the Association estimates that it will handle \$2,300,000 worth of fruit products this year.

▲ ▲ ▲

THE association recently went into new territory, having signed up 1,000 acres of the finest fruit and berry land in The Dalles district. Having studied the matter of co-operative marketing, a number of successful growers invited the association to come to The Dalles and within a short time 80 of the most successful growers in that district became members. Already it has purchased the large plant at The Dalles, formerly operated by the Stadlerman Fruit and Produce Company, and is shipping vegetables and berries.

Cannery Notes

RETURNS received by the government from 3,190 establishments engaged in the canning industry in 1919, according to the recent census, show that the products for that year were valued at \$416,145,000. In the census of 1914 there were 3,250 establishments reported with products valued at \$158,016,000. While there was a decrease in the number of canneries, the total value of products increased \$258,129,000, or 163.3 per cent. The following table shows the value of canned and dried fruits packed during the year 1919:

Number of establishments.....	3,190
Value of products.....	\$416,145,000
Vegetables, canned	164,619,000
Fruits, canned	127,965,000
Fruits, dried	86,024,000
Soup, canned	11,857,000
All other products (1).....	25,680,000

(1) Including dried vegetables, preserves, pickles, cider, vinegar and other canned foods produced in canning establishments.

▲ ▲ ▲

THE Libby, McNeil & Libby cannery at Yakima will receive 800 tons of Bartlett pears contracted for under its old agreement, which calls for a price of \$22.50 per ton. It is expected that this stock will run through its plant at The Dalles. Last year, owing to the higher price being generally paid for canning pears, the company ignored its low contract price and gave the growers the benefit of a compromise price between it and the higher price. The Bartlett pear crop in Washington is said to be of fine quality this year and select stock in some of the orchards is reported to be running as large as three inches in circumference.

▲ ▲ ▲

ASSERTING that the industry is willing to supplement the efforts of the government by the expenditure of hundreds of thousands of dollars of its own money in research work, the board of directors of the National Canners' Association at Chicago recently passed a resolution to this effect. The canners also adopted a resolution at this meeting, urging support by the government of important scientific research formerly conducted by different departments of the government, especially the Department of Agriculture, but now curtailed for lack of funds.

J. & H. GOODWIN Limited

Apple Exporters

Headquarters in United States

60 State Street

Boston, Massachusetts

The Largest Handlers of American Apples in English Markets

By using our service you can send your apples direct from the United States into the industrial centers of England. The same organization (J. & H. Goodwin, Ltd., throughout) which ships your fruit from the U. S. A., sells and distributes in London, Liverpool, Manchester, Glasgow and Hull, and on the European Continent.

This means quick handling, considerable economies and the fruit being sold in the freshest possible condition, which means greater returns.

For dependable export information write us at 60 State Street, Boston, Mass., or 127 Duane Street, New York City.



Water Instead of Ice!

This process of cooling by evaporation is recommended by the United States Department of Agriculture, and is being used successfully in thousands of homes. The Empire Iceless Refrigerator will save your food from spoiling through the hot summer months, and there is absolutely no expense attached to its use. Made also in windlass type for use in wells, etc. It is a proven success, and is guaranteed to do the work. Let us send you descriptive folder and prices.

Farm Supply Company

281 12th St.

Portland, Ore.

With the Poultry

DISEASES OF POULTRY

DISEASES of poultry have spread through the country this last year with great rapidity, and have caused enormous loss to poultrymen, says Dr. J. N. Shaw of the veterinary medicine department, Oregon Agricultural College.

Among the ills suffered by poultry in most sections of the country are chicken-pox, tuberculosis, white-diarrhea, and the presence of lice and mites. Some of these troubles are more or less easily remedied if even a little perseverance is used, Dr. Shaw thinks.

Chicken-pox is listed as one of the most prevalent diseases on the coast. It has lived up to its reputation for fatality this season. The experiment stations of Washington and California have produced a vaccine that shows remarkable results in controlling the spread of the disease and preventing deaths. In one year 800,000 doses were sent to the various parts of the country, 17,000 doses of which came to Oregon last winter.

Tuberculosis is listed next in fatality. Fully 60 per cent of the birds brought into the laboratory for examination and diagnosis have been affected with this disease, the causal organism of which is different from that causing tuberculosis in humans. This disease has a characteristic of not showing any symptoms until the fowl is so badly infected that it cannot be cured. All suspected cases should either be isolated or immediately destroyed. The positive test for this disease may be obtained only by isolating the organism and placing it under the microscope for identification.

White-diarrhea is a disease of which the average poultryman knows something from experience. The causal organism known as bacterium pullorum attacks the ovaries of the mature birds and causes fatal diarrhea in chicks. The presence of white, pasty diarrhea and a peculiar chirp is almost positive evidence of infection in chicks up to four days old, whereas there are no apparent symptoms resulting from the infection of older birds. Infection of otherwise healthy birds comes from infected droppings, by contact, impure drinking water, and unclean housing conditions, but chiefly through infected breeding stock. In all cases it is decidedly advantageous to destroy all sources of infection.

Round worms are quite common and frequently appear in the intestinal tract of birds that are apparently healthy. The California station has found the use of tobacco-dust quite successful as a remedy for this trouble. No satisfactory treatment has yet been found for the tape-worm. Lice are killed by the application of sodium flouride to the skin.

▲ ▲ ▲

LICE AND MITES

WHEREVER poultry are kept these pests are sure to be found unless a strict watch is kept and proper methods of destruction are employed. Lice are usually found upon the heads and necks of fowls and under the wings and around the vents. They seek moisture in some form, hence are also found about the eyes, in the nostrils and around the vent.

As dust is one of the best preventives of lice and mites it should be provided for the daily bath. If fowls become debilitated they should be quickly ridged of these pests. The best remedy is to dust them thoroughly under the wings, about the neck and around the vent with insect powders that can be obtained for this purpose. The applications should be repeated about three times at intervals of one week in order to kill those which hatch.

Mites work on the body of the fowls during the night and are found in the crevices about the roosts and in nesting material in the daytime. The free use of kerosene or carbolic acid solution or some of the commercial disinfectants will prove effective in fighting this insect. A good preventive

is a thorough coat of whitewash applied to the inside of the poultry house.

POULTRY NOTES

BOTH hens and pullets need to be well cared for during the late summer and fall months if winter egg production is to be maintained.

▲ ▲ ▲

BROILERS shrink about half a pound each when dressed.

▲ ▲ ▲

IF FOWLS are in fairly good condition two weeks is long enough to fatten them if they are highly fed.

▲ ▲ ▲

LATE hatched chicks do better if fed by themselves and not allowed to run with the larger fowls.

▲ ▲ ▲

NOBODY can raise poultry and produce eggs at as low a cost as the farmer if he will give his fowls a little attention and proper housing.

▲ ▲ ▲

TO PROMOTE digestion fowls should be kept in quarters where they can take the proper amount of exercise.

▲ ▲ ▲

NOW is a good time to repair the poultry house if eggs are desired in winter. Don't wait until the first cold rains and weather reduces the vitality of your flock by having them improperly housed.

▲ ▲ ▲

IF it is possible for you to do so store away some oats or rye in the sheaves for use during the winter. You will find them profitable in promoting egg-laying.

▲ ▲ ▲

WHILE the weather is still dry and warm the poultryman will find it an advantage to store away a barrel or two of dust to be used in the dust boxes during the winter.

Bits About Fruitmen and Fruitgrowing

THE signing of contracts between the new Wenatchee District Co-operative Association, the Yakima Fruitgrowers' Association of Washington and the North American Fruit Exchange is said to make the latter organization the largest distributor in the world of apples and other fruits and vegetables. The announcement of the reorganization of the exchange under a co-operative plan, devised by Aaron Sapiro, was recently made in New York. The announcement is of importance to the fruit growers of the Northwest because of the large tonnage handled by the organization in Oregon, Washington and Idaho. Under the plan of the reorganization the exchange, instead of being a purely personal profit institution as it has been in the past, it is stated, will now be a partner in the profits with the growers' associations it represents. The announcement states that the new organization has 140 branch offices in various parts of the country and that others will be opened.

▲ ▲ ▲

SECRETARY of Agriculture Wallace announces the appointment of Dr. H. C. Taylor as chief of the bureau of markets and crop estimates to succeed George Livingstone, who recently resigned. Dr. Taylor for several years has been chief of the office of farm management and farm economics and is looked upon by the department as being particularly fitted for the duties of his new position.

We buy car-lots of fruit. Wire or write us your offerings.

Coughlin Brokerage Agency

Mitchell, South Dakota

Some Reliable Northwest Nurserymen

An Early Order
For Fall or Spring
Delivery

Placed with

SALEM NURSERY COMPANY

428 Oregon Building
SALEM, OREGON

Will receive careful attention and give you good choice of varieties

Additional Salesmen Wanted

Wake Up

Get a Move on. You
Are Losing Time.

We mail prepaid four dozen mountain grown strawberry plants for one dollar.

Best for the West
Best for You
List Free

Evergreen Plantation

New Meadows, Idaho

Capital City Nursery Company

426 Oregon Building
SALEM OREGON

Will supply you with
first class stock in

**FRUIT, NUT AND ORNAMENTAL TREES,
SMALL FRUITS,
ROSES**

Send for catalog

WE Need Salesmen

AN APPLE show that recently attracted a good deal of attention in London was a large exhibit from Australian orchards. The fruit was packed in cases similar to the boxes used in the Northwest and the show was for the purpose of advertising Australian apples to the consumers of Great Britain. The organizers of the exhibit were Gerald and D. da Costa, who are well known in the United States, having handled large quantities of American apples for a number of years. It will be of interest to Northwest growers to know that the shipment of Australian apples to Great Britain has increased from 9,000 cases in 1910 to 600,000 cases this year.

▲ ▲ ▲

C. W. McCULLAGH announces that he has opened offices in Hood River for the purpose of buying fruit for the Eastern trade, and will operate throughout Oregon, Washington, Idaho and Montana. Mr. McCullagh began his career in the wholesale trade of Chicago, going from there to Seattle, where he was connected for six years with two of the largest houses. Then for five years he was sales manager for the Yakima Valley Fruit Growers' Association, leaving them for a similar position with the Hood River Apple Growers' Association. His knowledge of Eastern conditions fits Mr. McCullagh well for his new line of endeavor.

▲ ▲ ▲

THE HAWAIIAN pineapple industry has shown a remarkable growth in the past fifteen years. Packing approximately 144,000,000 cans in 1920, when in 1901 but 48,000 cans was the total output of the island, is the wonderful record of the pineapple canners of Hawaii. Marvelous inventions have been born of necessity in this, as in other great industries. There is one cannery operating smoothly and efficiently with a daily capacity up to 900,000 cans a day. The four outstanding factors in the wonderful progress made in the cultivation and canning of this luscious fruit are: The use of iron sulphate spray to offset the lack of iron in the soil; the perfecting of a mechanical coring and peeling machine; the invention of the slicer, and, finally, the development of the "eradicator," which gleans the pineapple left on the skin after the first rough peeling. There are about 46,000 acres taken up by the pineapple industry on the island, giving employment to approximately 20,000 people.

▼ ▼ ▼

OUR Canadian cousins are taking an active interest in loganberry culture, according to reports from Vancouver Island. It is claimed by those who know, that the berries grown there are equal to the best, and the Victoria and Island Development Association will send a representative to Oregon to study the methods employed. The association also plans to bring over a French wine expert for the purpose of attempting to develop a new flavor in the juice products.

FREE An 8x10 Enlargement
With \$3.00 Worth of
Kodak Finishing. Quick Service
Films received forenoon mailed out same
day. We pay return postage.
All Work Guaranteed
WOODARD, CLARKE & CO.
Alder at West Park PORTLAND, ORE.

FRUIT TREES
We are extensive growers of fruit
trees adapted to the Northwest.
GET OUR PRICES
COLUMBIA NURSERY
COMPANY
1490 Union Ave., No. Portland, Ore.

Look for the Sign

On service stations and garages
everywhere you will see the Red
Crown sign.

It will pay you to look for it before
you fill because Red Crown Gasoline
is the gasoline of quality with a con-
tinuous chain of boiling points, giving
ready starting, rapid acceleration and
maximum power.

STANDARD OIL COMPANY
(California)



*the Gasoline
of Quality*

Are You the Man?

*If so, BETTER FRUIT offers you
a chance to make good money*

We want a representative in every fruit-growing community. In every such community there is some individual with a little time each month to spare, who, by representing BETTER FRUIT, can make a good income.

Per haps it will be an elderly man?

A young fruit-grower just getting started?

A wife who wants to help out?

An ambitious boy or girl who wants to make extra money?

We want someone in *your* community to become our *permanent* representative—to secure new subscriptions for us and renew old ones.

We want two or three representatives in the Hood River Valley. -Several in Yakima and Wenatchee—in the Willamette Valley, Rogue River, etc. In fact we want *permanent* representatives in every fruit district of the West.

Our proposition is a good one. Are you the man or woman for the job?

Write today, stating your qualifications.

BETTER FRUIT PUBLISHING COMPANY
TWELFTH AND JEFFERSON STREETS
PORTLAND, OREGON

OAC

Oregon's Higher Institution of

TECHNOLOGY

Eight Schools; Seventy Departments

FALL TERM OPENS SEPT. 19, 1921

For information write to the Registrar

Oregon Agricultural College
CORVALLIS

Classified Advertisements

RATES, 4 CENTS PER WORD

NURSERY STOCK

TREES—All kinds of fruit and ornamental trees, vines, etc. Growers of general nursery stock. Lowest quotations given on application. Send us your want list. Can also use a few good salesmen. Albany Nurseries, Albany, Ore.

FARMS FOR SALE

WANTED—To hear from owner of good ranch for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

WANT to hear from parties having farm for sale. Give particulars and lowest price. John J. Black, 197th St., Chippewa Falls, Wisconsin.

CUT-OVER and Developed Lands, 15 to 25 miles N. E. Spokane; extra good soil; spring brooks; grows grain, vegetables hay, fruits; several developed ranches; few stock ranches; \$10 to \$20 acre; 10 years' time, 6 per cent interest. Free lumber. Write owners for free book. Edwards & Bradford Lumber Co., E.k. Washington.

LOGGED-OFF LAND in Stevens County, Washington, at greatly reduced prices: Why bother with fruit land at high prices when you can get good dairy and stock land at from \$5.00 to \$20.00 per acre? Write for folder. Phoenix Lumber Co., Dept. B, Spokane, Wash.

BIG APPLE ORCHARD and by-products plant in famous Southern-Pennsylvania Apple Belt. J. P. Stewart, 305 Carlisle Ave., York, Pa.

MISCELLANEOUS

ARROW CARBOLINEUM kills chicken mites in poultry houses. Preserves wood against rot and premature decay. Write for circular and prices. Carbolineum Wood Preserving Co., 222 E. Water St., Portland, Oregon.

TOBACCO—KENTUCKY NATURAL LEAF, chewing and smoking; rich, ripe and mellow; two and three years old, aged in wood; 2 lbs., \$1; 7 lbs., \$3; sample 10 cents. Maddox Bros., Dept. 22, Mayfield, Ky.

BUY A CATTERLOUSE Tractor Attachment for \$175, attach it to your Ford and it will do four horse work. Write us. Gallagher & Co., Inc., Ash and Sinto, Spokane, Wash.

POULTRY

ORDER CHICKS NOW for delivery any time after August 1st. Broilers pay, Pullets make good layers. R. I. Reds, White Leghorns, Barred Rocks. Safe arrival guaranteed. Write for circular. Stubbe Poultry Ranch & Hatchery, P. O. Box 67 Palo Alto, Calif.

PULLETS—We can supply O. A. C. and Tancred White Leghorn Pullets. Rhode Island Reds and Barred Rocks at all ages—some ready to lay. Also one and two year old hens, good breeders. Exceptionally fine range-raised birds. Portland Seed Co., 180 Front St., Portland, Ore.

SALESMEN WANTED

MEN with proven ability capable of selling a line of high grade nursery stock on a commission contract. Weekly cash advance. Splendid territory may be had by answering immediately.

SALEM NURSERY CO.

427 Oregon Building Salem, Oregon

AGENTS WANTED—Benedict Nursery Co., 185 East 87th St., Portland, Oregon.

AGENTS WANTED—Our prices are right. Columbia Nursery Co., 1490 Union Ave., No., Portland, Oregon.



Kills prairie dogs, ground hogs, ground squirrels, pocket gophers. Saves alfalfa. Experimental stations approve. 1000 tablets P. P. \$1.50. Warranted. Ask your druggist or send direct. Booklet Free. Address

FT. DODGE CHEMICAL CO., Ft. Dodge, Iowa

FREE We will make one 5x7 enlargement FREE, for anyone who sends a roll of films to be developed and printed, enclosing this adv.

A. A. BAILEY, JR.

Lipman Wolfe Bldg. Portland, Oregon

BEEES AND BEEKEEPING

THE number of hives of bees on farms in the United States on January 1, 1920, according to the fourteenth census, was 3,476,346, as compared with 3,445,006 in 1910, showing an increase of 31,340, or 0.9 per cent. In making comparisons between these two years the change in the date of enumeration, from April 15 in 1910 to January 1 in 1920, should be taken into consideration. Especially in states where the winters are severe, the number of hives of bees on farms in April of any year is likely to be considerably less than the number in January. In such states the 1920 figures may be somewhat too high for a fair comparison with 1910. It is probable, therefore, that a count of the hives of bees in April, 1920, would have shown a decrease, as compared with the number in 1910, rather than even a slight increase.

The states reporting the largest number of hives of bees on farms on January 1, 1920, were Texas, with 235,111; Tennessee, with 191,898; California, with 180,719; North Carolina, with 163,956; Illinois, with 162,630; Missouri, with 157,678; Kentucky, with 156,889; and Alabama, with 153,766. These eight states are the only ones which reported over 150,000 hives of bees in 1920. Tennessee showed the greatest absolute increase, with 47,417 more hives of bees in 1920 than in 1910, and Oklahoma was second, with 27,330 more hives in 1920 than in 1910.

The production of honey in 1919 was 55,261,552 pounds, as against 54,814,890 pounds in 1909, an increase of 0.8 per cent. The production of honey is fairly uniformly distributed throughout the United States. Six states reported more than 2,000,000 pounds of honey produced in 1919, as follows: California, 5,501,738 pounds; Texas, 5,026,095 pounds; New York, 3,223,323 pounds; Iowa, 2,840,025 pounds; Wisconsin, 2,676,683 pounds; and Colorado, 2,493,950 pounds.

The amount of honey produced in 1919 by the Northwestern states was as follows: Washington, 1,596,206 pounds; Oregon, 929,555 pounds; Idaho, 1,208,229 pounds; Montana, 630,608 pounds. On January, 1920, Washington had 56,906 hives of bees; Oregon, 45,264; Idaho, 35,000; Montana, 11,918.

THE BEST IN TREES AND
SHRUBBERY
BOTH FRUITS AND ORNAMENT
E. A. Bennet Nursery Co.
1030 Chemeketa Street
SALEM, OREGON

Phone Main 6018 for
ROGERS COMPANY
Rubber Stamps, Seals
Stencils

514 Gerlinger Building
Portland, Oregon

TREES AND SHRUBS



Fruit trees budded from bearing orchards. Apple, Pear, Cherry, Peach, Plum, Prune, Apricot, Quince, Grape Vines, Shrubbery, Plants, Raspberries, Blackberries, Logans, Dewberries, Asparagus, Rhubarb, Flowering Shrubs, Roses, Vines, Hedge, Nut and Shade Trees. Carriage paid. Satisfaction guaranteed.

WASHINGTON NURSERY CO.
Toppenish, Washington.
Salesmen everywhere. More wanted.

CORN HARVESTER Self Gathering for cutting Corn, Cane and Kaffir Corn. Cuts and throws in piles on harvester. Man and horse cuts and shocks equal to a Corn Binder. Sold in every state. Price only \$28 with fodder binder. The only self gathering corn harvester on the market, that is giving universal satisfaction. Dexter L. Woodward, Sandy Creek, N. Y., writes: "3 years ago I purchased a Corn Harvester. Would not take 4 times the price of the machine if I could not get another one." Clarence F. Higgins, Spearmore, Okla., "Works 5 times better than I expected. Saved \$40 dollars in labor this fall." Roy Apple, Farmersville, Ohio., "I have used a corn shucker, corn binder and 2 rowed machines, but your machine beats them all and takes less twine of any machine I have ever used." John F. Haag, Mayfield, Oklahoma., "Your harvester gave good satisfaction while using filling our Silo." K. F. Ruegnitz, Otis, Colo., "Just received a letter from my father saying he received the corn binder and he is cutting corn and cane now. Says it works fine and that I can sell lots of them next year." Write for free catalog showing picture of harvester at work and testimonials.

PROCESS MFG. CO.

Salina, Kansas

**Gebhardt, Scudder &
Hendrickson**

Attorneys at Law

610 Spalding Building, Portland, Oregon

Attorneys for Better Fruit Publishing Co.

WHAT IS YOUR INCOME?

You Can Tell Uncle Sam
If You Keep Farm Records!

Tweed's
Cost
Records



—will make it possible for you to comply with the law. A few minutes a day is all that is required to keep these simplest of records. No knowledge of bookkeeping is necessary. What would you think of a merchant who kept no books? You fruit growers are in a business as much as any merchant, yet many of you keep no records, and do not know where the leaks occur.

TWEEDS COST RECORDS have been worked out carefully by a man who was raised on a farm and knows from experience how little time a farmer has for bookkeeping. Hundreds of farmers are finding the **TWEED SYSTEM** simple and practical. Write today for full particulars, stating size and kind of farm you operate.

FARM SUPPLY CO.

281 Twelfth Street

Portland, Oregon